

REPORT

ON THE

COTTON PRODUCTION OF THE STATE OF NORTH CAROLINA,

WITH A DISCUSSION OF

THE GENERAL AGRICULTURAL FEATURES OF THE STATE.

BY

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LETTERS OF TRANSMITTAL.

BERKELEY, CALIFORNIA, May 31, 1883.

To the SUPERINTENDENT OF CENSUS.

DEAR SIR: I have the honor to transmit herewith a report on the cotton production and agricultural features of the state of North Carolina, by Professor W. C. Kerr, special agent in charge of the subject for the state.

Professor Kerr's long-continued connection with the geological and agricultural survey, as well as with the agricultural experiment station and board of agriculture of his state, imparts to his presentation of its natural features and most important agricultural industry an unusually authoritative character, from a thoroughness of personal knowledge that also finds expression in the brevity and terseness of his descriptions. While a portion of the matter has already been given to the public in state publications, yet in its present complete and unified form this report will convey so many more definite and connected impressions of the natural and industrial characteristics of North Carolina as to render it of great interest both to the general reader, the student, and to those directly interested in industrial pursuits.

Very respectfully,

EUG. W. HILGARD,
Special Agent in charge of Cotton Production.

Professor EUGENE W. HILGARD,

Special Agent in charge of Cotton Production.

DEAR SIR: I have the honor to transmit herewith my report on the cotton production of North Carolina. You will observe that I have followed closely the model of your Louisiana report, giving:

- (1) Tables of acreage and production of leading crops.
- (2) A description of the physical geography.
- (3) A description of the agricultural regions.
- (4) General discussion of cotton production and culture.
- (5) Description of the counties in the several agricultural regions.
- (6) Abstracts of the schedules of cotton production appended to each description.
- (7) Abstracts of schedule answers to questions regarding cultivation, markets, diseases, etc.

The sources of information for this paper are—

- (1) For the topography and geology, personal notes of observations throughout the state.
- (2) For climate, tri-daily observations made under the direction of the state geological survey at about thirty stations during the last twelve years, and publications of the Smithsonian Institution and of the signal service.
- (3) For soils, forests, and other agricultural data: first, personal notes of observations in prosecution of the geological survey in every county of the state, Ruffin's *Sketches of Eastern North Carolina*, and Emmons' *Swamp Lands*; second, maps of the state land surveys, chiefly of the public swamp lands; third, unpublished maps of numerous railroad surveys; and fourth, the answered schedules of questions, from which some details have been obtained for parts of a few counties.

The analyses of soils given in the text were made in part for the Census Office by Messrs. J. B. Durrett, O. Cory, H. McCalley, and R. H. Loughridge at the University of Alabama, and in part for the state geological survey by Messrs. O. H. Bogardus, of the New Jersey survey, and G. B. Hanna, assayer of the United States mint at Charleston.

Very respectfully, yours,

W. C. KERR.

TABULATED RESULTS OF THE ENUMERATION.

TABLE I.—AREA, POPULATION, TILLED LAND, AND COTTON PRODUCTION.

TABLE II.—ACREAGE AND PRODUCTION OF LEADING CROPS.

TABULATED RESULTS OF THE ENUMERATION.

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TABLE I.—AREA, POPULATION, TILLED LAND, AND COTTON PRODUCTION.

Counties.	Area.	POPULATION.						TILLED LAND.			COTTON PRODUCTION.					Cotton acreage per square mile.
		Total.	Male.	Female.	White.	Color'd.	Average per square mile.	Acres.	Per cent. in cotton.	Per cent. of county area.	Acres.	Bales.	Average per acre.			
													Bales.	Seed-cotton.	Lint.	
The State.....	Sq. mls.	1,390,750	687,008	711,842	807,242	582,508	20	5,026,087	15.07	19.00	893,153	889,598	0.44	621	207	18.36
SEABOARD REGION.																
Currituck.....	282	0,476	8,337	3,139	4,495	1,981	23	40,455	0.78	22.41	316	189	0.44	627	209	1.12
Camden.....	214	0,274	3,133	3,141	3,791	2,483	20	35,870	7.44	26.20	2,070	823	0.31	438	146	12.48
Pasquotank.....	232	10,369	5,129	5,240	4,855	5,514	44	51,400	7.79	34.02	4,004	1,181	0.29	420	140	17.26
Perquimans.....	245	9,460	4,683	4,783	4,795	4,671	39	53,544	13.12	34.15	7,025	2,778	0.40	564	188	28.67
Chowan.....	150	7,900	3,822	4,078	3,633	4,267	53	35,234	17.10	36.72	0,047	2,223	0.37	525	175	40.31
Dare.....	382	3,243	1,650	1,593	2,875	868	8	2,094	7.03	0.80	10	8	0.50	714	238	0.04
Tyrrell.....	376	4,545	2,308	2,242	3,110	1,435	12	18,225	18.11	7.98	3,481	1,123	0.32	459	153	9.26
Washington.....	382	8,928	4,352	4,576	4,554	4,374	23	30,711	26.43	12.56	8,117	3,524	0.43	618	206	21.25
Hyde.....	557	7,705	3,948	3,817	4,424	3,341	14	32,167	7.81	9.02	2,513	718	0.29	408	136	4.51
Beaufort.....	620	17,474	8,701	8,773	10,022	7,452	28	43,625	27.01	10.99	11,785	0,021	0.51	720	243	19.01
Pamlico.....	470	6,323	3,125	3,198	4,207	2,110	13	16,989	25.20	5.05	4,585	2,220	0.40	693	231	9.76
Craven.....	820	10,720	9,351	10,378	6,664	13,065	24	50,853	25.25	9.98	12,838	5,782	0.45	642	214	15.66
Carteret.....	407	9,784	4,818	4,966	7,107	2,677	24	17,984	16.33	6.90	2,936	1,014	0.35	492	164	7.21
Jones.....	389	7,491	3,761	3,730	3,212	4,279	19	53,458	15.83	21.47	8,463	4,078	0.48	687	229	21.76
Onslow.....	645	9,820	4,010	4,913	6,600	3,229	15	56,120	11.86	13.59	6,658	2,841	0.43	669	203	10.32
Pender.....	880	12,468	6,309	6,159	5,509	6,959	14	38,156	3.83	6.71	1,463	835	0.57	813	271	1.65
New Hanover.....	182	21,376	9,935	11,441	8,159	13,217	117	7,890	1.92	0.35	142	66	0.46	603	221	0.78
Brunswick.....	814	9,389	4,769	4,620	5,337	4,052	12	18,006	2.14	3.46	385	244	0.63	993	301	0.47
Columbus.....	895	14,439	7,212	7,227	8,926	5,513	16	38,293	5.52	6.60	2,113	930	0.44	627	209	2.36
Total	8,951	193,268	95,254	98,014	102,275	90,993	22	641,580	13.34	11.20	85,557	36,554	0.43	609	203	0.56
LONG-LEAF PINE REGION.																
Gates.....	330	8,897	4,277	4,620	4,973	3,924	20	48,821	11.69	22.50	5,707	1,863	0.33	465	155	16.83
Hertford.....	376	11,843	5,816	6,027	5,122	6,721	31	53,625	27.24	22.28	14,005	6,300	0.44	621	207	30.80
Bertie.....	680	16,399	8,129	8,270	6,815	9,584	24	82,377	23.62	18.63	19,455	7,290	0.37	534	178	28.24
Northampton.....	557	20,032	9,920	10,112	7,987	12,045	36	96,565	37.51	27.09	36,219	13,616	0.38	537	179	65.02
Halifax.....	682	30,300	15,212	15,088	9,137	21,163	44	130,219	33.18	32.12	43,206	16,061	0.39	540	183	63.35
Nash.....	595	17,731	8,777	8,954	9,417	8,314	30	82,238	31.33	21.60	25,768	12,567	0.40	696	232	43.31
Edgecombe.....	567	26,181	13,130	13,051	7,968	18,213	46	132,875	39.27	36.62	51,880	26,250	0.51	720	240	61.50
Pitt.....	657	21,794	10,719	11,084	10,704	11,090	33	103,302	30.15	24.57	31,147	14,879	0.43	631	227	47.41
Greene.....	257	10,087	4,932	5,105	4,652	5,885	39	75,084	22.63	45.65	16,988	8,020	0.47	672	224	62.22
Martin.....	482	13,140	6,455	6,685	6,661	6,479	27	56,877	23.67	18.23	13,444	6,383	0.47	678	220	27.89
Wilson.....	376	16,064	7,058	8,106	8,655	7,409	43	65,255	36.33	27.12	23,706	13,049	0.55	783	261	63.05
Johnston.....	689	23,461	11,581	11,880	15,996	7,465	34	104,407	30.83	23.08	32,193	15,151	0.47	672	224	46.72
Wayne.....	601	24,951	12,308	12,643	12,827	12,124	42	122,102	26.29	31.74	32,103	14,558	0.45	645	215	53.42
Lenoir.....	457	15,844	7,502	7,842	7,277	8,067	34	83,943	22.82	28.73	19,150	8,235	0.43	612	204	41.90
Duplin.....	832	18,773	9,143	9,630	10,587	8,186	23	69,314	13.93	13.02	9,654	4,499	0.47	663	221	11.60
Sampson.....	964	22,894	11,187	11,707	13,347	9,547	24	116,892	13.13	18.95	15,346	6,291	0.41	585	195	15.92
Cumberland.....	982	23,836	11,493	12,343	12,594	11,242	26	54,238	16.98	8.63	9,210	3,905	0.42	603	201	9.38
Harnett.....	601	10,862	5,362	5,500	7,092	3,770	18	42,173	22.01	10.96	9,281	8,627	0.39	558	186	15.44
Moore.....	807	16,321	8,395	8,426	11,485	5,336	21	63,780	12.91	13.32	8,882	3,938	0.45	639	218	11.01
Richmond.....	826	18,245	8,903	9,282	8,141	10,104	22	75,268	33.43	14.24	25,198	12,754	0.51	720	240	30.51
Robeson.....	1,039	23,830	11,840	12,040	11,942	11,938	23	103,055	20.96	15.50	31,007	8,846	0.41	582	194	20.79
Bladen.....	1,026	16,158	7,954	8,204	7,598	8,500	10	37,990	4.26	5.79	1,613	633	0.42	603	201	1.57
Total	14,401	407,643	201,044	208,599	200,977	200,666	28	1,804,900	25.84	19.58	466,367	209,475	0.45	639	213	32.39
OAK UPLANDS REGION.																
Warren.....	507	22,619	11,234	11,385	6,386	16,233	45	83,864	25.76	25.84	21,603	7,738	0.36	513	171	42.61
Franklin.....	526	20,829	10,294	10,535	9,476	11,353	40	87,492	34.60	25.99	30,274	12,938	0.43	609	203	57.56
Granville.....	695	31,286	15,558	15,728	13,603	17,683	45	145,036	4.52	32.61	6,559	2,535	0.39	552	184	9.44
Wake.....	922	47,939	23,835	24,104	24,280	23,650	51	156,899	38.19	26.30	59,916	30,115	0.50	717	239	64.29
Orange.....	652	23,698	11,780	11,913	14,555	9,143	30	82,607	6.40	19.81	5,290	1,019	0.36	516	172	8.11
Chatham.....	826	23,453	11,416	12,037	15,500	7,953	28	119,185	11.30	22.55	13,478	5,858	0.43	618	206	16.33
Montgomery.....	489	9,374	4,616	4,758	6,837	2,517	19	46,209	14.11	14.77	6,519	2,980	0.46	664	218	13.33
Anson.....	545	17,994	8,712	9,282	8,790	9,204	33	88,293	32.05	25.31	28,296	11,857	0.42	597	199	51.92
Union.....	557	13,056	8,941	9,115	13,520	4,536	32	83,913	22.75	23.54	10,090	8,336	0.44	621	207	34.27
Stanley.....	432	10,505	5,119	5,386	9,166	1,339	24	53,623	10.02	21.21	5,878	2,475	0.42	600	200	13.69
Davidson.....	564	20,333	9,984	10,969	16,341	3,992	36	113,814	3.33	31.39	3,779	1,553	0.41	585	195	6.70
Rowan.....	482	19,905	9,693	10,332	13,621	6,344	41	94,378	12.34	30.69	10,645	4,381	0.41	535	195	22.08

COTTON PRODUCTION IN NORTH CAROLINA.

TABLE I.—AREA, POPULATION, TILLED LAND, AND COTTON PRODUCTION—Continued.

Counties.	Area.	POPULATION.						TILLED LAND.			COTTON PRODUCTION.					Cotton acreage per square mile.
		Total.	Male.	Female.	White.	Color'd.	Average per square mile.	Acres.	Per cent. in cotton.	Per cent. of county area.	Acres.	Bales.	Average per acre.			
													Bales.	Seed-cotton.	Lint.	
OAK UPLANDS REGION—cont'd.																
	Sq. mls.											475 lbs.		Lbs.		
Cabarrus.....	370	14,964	7,858	7,606	9,849	5,115	40	80,430	23.90	33.97	19,224	7,467	0.30	552	184	51.60
Mecklenburg.....	576	34,175	17,027	17,148	17,922	16,253	59	134,028	30.85	36.36	41,343	19,129	0.46	660	220	71.73
Iredell.....	595	22,075	10,876	11,799	16,752	5,923	38	101,018	11.49	26.53	11,603	4,657	0.40	573	191	19.50
Catawba.....	445	14,946	7,153	7,798	12,469	2,477	34	75,350	7.00	26.46	5,175	2,012	0.39	555	185	11.63
Lincoln.....	295	11,061	5,341	5,720	8,180	2,881	37	53,571	13.89	28.37	7,442	2,945	0.40	564	188	25.23
Gaston.....	364	14,254	6,916	7,338	10,188	4,066	39	59,509	18.33	25.57	10,949	4,588	0.42	597	190	30.08
Cleveland.....	464	16,571	8,022	8,549	13,700	2,871	36	85,752	22.43	23.88	19,238	6,126	0.32	453	151	41.46
Rutherford.....	520	15,198	7,234	7,964	11,010	3,288	29	63,825	15.16	19.18	9,079	2,079	0.21	306	102	18.01
Randolph.....	701	20,836	10,050	10,786	17,758	9,778	30	91,093	0.65	20.44	595	295	0.50	708	236	0.85
Guilford.....	682	23,585	11,322	12,263	16,885	6,700	35	126,722	0.22	28.10	283	114	0.40	573	191	0.42
Alamance.....	445	14,613	6,992	7,621	9,997	4,616	33	72,621	0.29	25.50	211	91	0.43	615	205	0.47
Person.....	401	13,710	6,692	7,027	7,206	6,513	34	71,634	.....	27.91	2	1	0.50	711	237	.....
Caswell.....	407	17,825	8,951	8,874	7,100	10,656	44	83,545	0.01	32.07	6	4	0.67	951	317	.....
Rockingham.....	582	21,744	10,770	10,974	12,431	9,313	37	77,430	0.01	20.79	5	3	0.60	355	285	.....
Stokes.....	476	15,353	7,554	7,790	11,730	3,623	32	53,360	0.02	17.52	13	7	0.54	768	256	0.03
Forsyth.....	364	18,070	8,832	9,238	13,441	4,629	50	59,157	0.03	25.39	16	10	0.63	891	297	0.04
Davie.....	289	11,096	5,396	5,700	7,770	3,326	38	59,272	1.33	32.05	790	302	0.38	546	182	2.73
Yadkin.....	351	12,420	5,954	6,466	10,876	1,544	35	52,816	0.16	23.51	87	26	0.30	426	142	0.25
Surry.....	476	15,302	7,504	7,798	13,227	2,075	32	69,011	.....	22.65	3	1	0.33	474	158	.....
Wilkes.....	626	10,181	9,080	10,092	17,257	1,924	31	80,512	0.13	20.10	107	29	0.27	387	129	0.17
Alexander.....	245	8,355	4,025	4,330	7,458	897	34	41,572	1.49	26.51	617	182	0.29	420	140	2.52
Caldwell.....	495	10,291	4,977	5,314	8,691	1,600	21	41,512	0.07	13.10	30	12	0.40	570	190	0.06
Burke.....	480	12,806	6,157	6,652	10,088	2,721	20	42,545	1.78	13.59	752	361	0.48	684	228	1.54
McDowell.....	545	9,830	4,847	4,980	7,939	1,897	18	34,798	0.07	0.98	23	9	0.39	558	186	0.04
Polk.....	257	5,062	2,493	2,569	3,918	1,144	20	21,027	7.83	12.78	1,046	392	0.22	312	104	6.40
Total.....	18,667	659,992	322,604	337,388	436,915	223,077	35	2,892,675	11.79	24.21	341,166	143,546	0.42	597	199	18.28
TRANSMONTANE REGION.																
Alleghany.....	276	5,486	2,760	2,726	4,967	510	20	46,198	.....	26.15	.....	.....	.....	.....	.....	.....
Ashe.....	370	14,437	7,249	7,188	13,471	966	39	70,207	.....	29.65	.....	.....	.....	.....	.....	.....
Watauga.....	370	8,160	4,022	4,138	7,746	414	22	44,753	0.02	18.80	10	3	0.30	429	143	0.03
Mitchell.....	401	9,435	4,666	4,769	8,932	503	24	31,975	0.05	12.46	15	6	0.40	570	190	0.04
Yancey.....	276	7,694	3,793	3,901	7,369	325	28	34,703	.....	19.65	.....	.....	.....	.....	.....	.....
Madison.....	457	12,810	6,468	6,342	12,351	459	28	57,490	0.02	19.66	12	4	0.33	474	158	0.03
Buncombe.....	614	21,909	10,938	10,971	18,422	3,487	36	77,028	.....	19.75	.....	.....	.....	.....	.....	.....
Henderson.....	351	10,281	5,019	5,262	8,898	1,388	29	38,595	0.03	17.18	10	4	0.40	570	190	0.03
Transylvania.....	382	5,340	2,682	2,658	4,823	517	14	17,967	.....	7.35	.....	.....	.....	.....	.....	.....
Haywood.....	582	10,271	5,097	5,174	9,787	484	18	40,474	.....	10.87	.....	.....	.....	.....	.....	.....
Jackson.....	532	7,843	3,643	3,700	6,591	752	14	23,006	0.06	8.40	16	6	0.38	534	178	0.03
Macon.....	539	8,064	3,932	4,132	7,395	669	15	32,630	.....	9.46	.....	.....	.....	.....	.....	.....
Swain.....	445	3,784	1,912	1,872	3,234	550	9	13,828	.....	4.86	.....	.....	.....	.....	.....	.....
Graham.....	307	2,335	1,155	1,180	2,123	212	8	8,212	.....	4.18	.....	.....	.....	.....	.....	.....
Clay.....	189	3,316	1,679	1,637	3,175	141	18	15,063	.....	12.45	.....	.....	.....	.....	.....	.....
Cherokee.....	470	8,182	3,901	4,191	7,796	386	17	23,693	.....	9.51	.....	.....	.....	.....	.....	.....
Total.....	6,561	188,847	69,006	69,841	127,075	11,772	21	586,932	0.01	13.95	63	23	0.36	516	172	0.96

TABULATED RESULTS OF THE ENUMERATION.

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TABLE II.—ACREAGE AND PRODUCTION OF LEADING CROPS.

Counties.	COTTON.		TOBACCO.		CORN.		SWEET POTATOES.		RICE.		OATS.	
	Acres.	Bales (475 lbs.).	Acres.	Pounds.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Pounds.	Acres.	Bushels.
The State.....	893, 153	380, 598	57, 208	26, 086, 213	2, 305, 419	28, 019, 830	50, 803	4, 570, 148	10, 846	5, 609, 101	500, 415	3, 838, 008
SEABOARD REGION.												
Currituck.....	316	130			23, 310	324, 810	462	42, 002	58	7, 727	267	2, 784
Camden.....	2, 070	823			23, 068	295, 447	377	26, 823	86	16, 861	1, 008	8, 854
Pasquotank.....	4, 004	1, 181			28, 525	348, 110	291	22, 751	2	810	1, 030	17, 448
Perquimans.....	7, 025	2, 778	1	400	21, 910	202, 850	850	99, 498	3	2, 000	1, 222	13, 921
Chowan.....	6, 047	2, 223	1	398	13, 877	143, 156	723	62, 247			791	6, 888
Dare.....	16	8			956	11, 205	293	10, 717	7	2, 780	17	230
Tyrrell.....	3, 481	1, 123			8, 300	108, 830	460	31, 730	503	237, 515	781	7, 622
Washington.....	8, 117	3, 524	4	685	15, 824	217, 631	479	48, 429	87	60, 873	1, 065	13, 427
Hyde.....	2, 513	718	4	517	21, 632	249, 623	261	20, 236	1, 016	304, 671	1, 354	18, 400
Beaufort.....	11, 785	6, 021	17	5, 203	20, 225	286, 211	1, 693	188, 507	979	502, 676	1, 395	18, 436
Pamlico.....	4, 585	2, 226	12	1, 520	6, 381	107, 959	783	65, 807	394	270, 174	378	4, 845
Craven.....	12, 838	5, 782	6	2, 732	10, 001	218, 256	1, 323	115, 538	438	251, 108	333	4, 426
Carters.....	2, 936	1, 014	1	303	5, 156	41, 458	834	61, 460	413	206, 965	107	1, 122
Jones.....	8, 403	4, 078	1	250	10, 425	186, 954	435	38, 287	321	118, 777	455	5, 426
Onslow.....	6, 658	2, 841	2	730	23, 259	185, 019	765	67, 080	159	92, 565	96	1, 280
Pender.....	1, 468	835	3	690	16, 550	159, 064	1, 522	116, 559	392	248, 622	189	2, 209
New Hanover.....	142	60			2, 008	15, 937	316	23, 138	315	260, 068	86	606
Brunswick.....	385	244	7	2, 502	4, 015	46, 329	1, 523	111, 779	1, 489	1, 163, 852	240	2, 262
Columbus.....	2, 113	930	15	3, 866	15, 723	186, 546	2, 242	186, 306	1, 201	462, 042	267	2, 517
Total.....	85, 557	36, 554	74	10, 856	200, 640	3, 360, 422	15, 632	1, 340, 712	7, 863	4, 216, 176	11, 975	132, 703
LONG-LEAF PINE REGION.												
Gates.....	5, 707	1, 803	3	620	21, 046	170, 642	972	87, 494			1, 210	10, 016
Hertford.....	14, 005	6, 360	7	2, 100	25, 521	236, 088	438	76, 439			1, 800	14, 512
Bertie.....	19, 455	7, 290	2	554	37, 735	345, 091	890	94, 473			2, 403	20, 517
Northampton.....	36, 210	13, 616	36	20, 484	45, 224	431, 581	506	67, 858			4, 805	45, 700
Hulifax.....	43, 206	16, 661	21	8, 487	44, 790	37, 321	543	52, 709			4, 497	41, 771
Nash.....	25, 768	12, 567	27	7, 562	32, 400	295, 019	848	93, 997			8, 875	30, 135
Edgecombe.....	51, 880	26, 250	3	550	46, 235	433, 214	823	86, 033	17	2, 801	9, 589	94, 021
Pitt.....	81, 147	14, 870	8	508	46, 482	458, 106	1, 171	82, 334	101	110, 087	8, 301	29, 406
Greene.....	16, 088	8, 020	8	1, 055	25, 148	173, 421	420	37, 660	35	19, 214	1, 738	16, 772
Martin.....	13, 444	6, 383	1	211	24, 200	227, 445	829	92, 013	11	3, 150	1, 447	11, 220
Wilson.....	23, 706	13, 049	17	8, 745	27, 288	299, 957	525	58, 336	6	1, 800	1, 590	13, 082
Johnston.....	32, 193	15, 151	36	12, 881	45, 045	428, 096	1, 910	210, 450	36	19, 072	3, 176	20, 658
Wayne.....	32, 103	14, 558	198	102, 970	44, 469	466, 492	1, 347	120, 551	567	294, 201	1, 770	18, 600
Lenoir.....	10, 150	8, 235	45	13, 500	29, 838	274, 010	584	59, 995	208	95, 550	1, 080	12, 217
Duplin.....	9, 654	4, 499	16	4, 655	36, 813	330, 437	1, 842	109, 044	629	300, 208	433	6, 132
Sampson.....	15, 346	6, 291	28	14, 352	53, 951	486, 768	1, 907	214, 596	441	240, 086	654	6, 297
Cumberland.....	9, 210	3, 905			32, 677	282, 423	1, 110	91, 355	42	19, 063	1, 509	13, 701
Harnett.....	9, 281	3, 627	32	9, 510	21, 244	180, 458	962	96, 118	1	830	1, 202	7, 640
Moore.....	8, 882	3, 988	70	15, 724	27, 934	302, 196	716	65, 018			7, 924	48, 744
Richmond.....	25, 198	12, 754	6	1, 305	29, 502	277, 974	750	65, 374	38	17, 469	3, 571	32, 270
Robeson.....	21, 607	8, 846	2	577	49, 061	380, 128	1, 825	167, 225	303	118, 393	2, 814	22, 845
Bladen.....	1, 618	683	6	1, 040	21, 556	188, 208	1, 554	117, 038	478	140, 340	362	3, 795
Total.....	466, 307	209, 475	567	228, 449	770, 058	7, 086, 575	22, 718	2, 198, 846	2, 968	1, 383, 839	60, 739	530, 123
OAK UPLANDS REGION.												
Warron.....	21, 603	7, 778	1, 759	902, 256	28, 467	293, 773	383	28, 782			5, 550	46, 000
Franklin.....	30, 274	12, 838	118	58, 932	32, 642	338, 239	493	48, 684			5, 560	45, 812
Granville.....	6, 559	2, 535	8, 941	4, 606, 358	42, 608	515, 159	680	52, 307			14, 344	110, 690
Wake.....	59, 916	30, 115	230	94, 354	53, 172	612, 860	1, 797	155, 260			13, 948	98, 062
Orange.....	5, 290	1, 919	2, 323	1, 178, 732	28, 542	366, 640	261	22, 300			12, 243	86, 268
Chatham.....	18, 478	5, 858	141	49, 837	43, 087	558, 281	622	58, 334			19, 861	120, 341
Montgomery.....	6, 519	2, 989	54	14, 370	18, 090	210, 521	231	21, 849			7, 852	50, 248
Anson.....	28, 296	11, 857	11	4, 880	29, 121	395, 139	499	39, 645			8, 999	72, 434
Union.....	19, 090	8, 236	9	3, 467	28, 877	338, 520	222	19, 218			14, 357	101, 719
Stanley.....	5, 878	2, 475	8	1, 735	22, 426	271, 877	113	10, 376			10, 975	72, 223
Davidson.....	3, 779	1, 553	484	260, 538	36, 933	549, 906	390	30, 665			16, 924	122, 063
Rowan.....	10, 645	4, 381	216	115, 251	38, 968	597, 519	277	25, 452			17, 761	142, 121
Cabarrus.....	19, 224	7, 467	12	3, 239	26, 831	381, 321	120	11, 241			7, 592	54, 510
Mecklenburg.....	41, 343	19, 129	10	2, 291	41, 285	539, 385	281	26, 393			12, 049	94, 356
Iredell.....	11, 603	4, 657	465	242, 714	89, 264	588, 220	182	11, 601			17, 488	126, 429

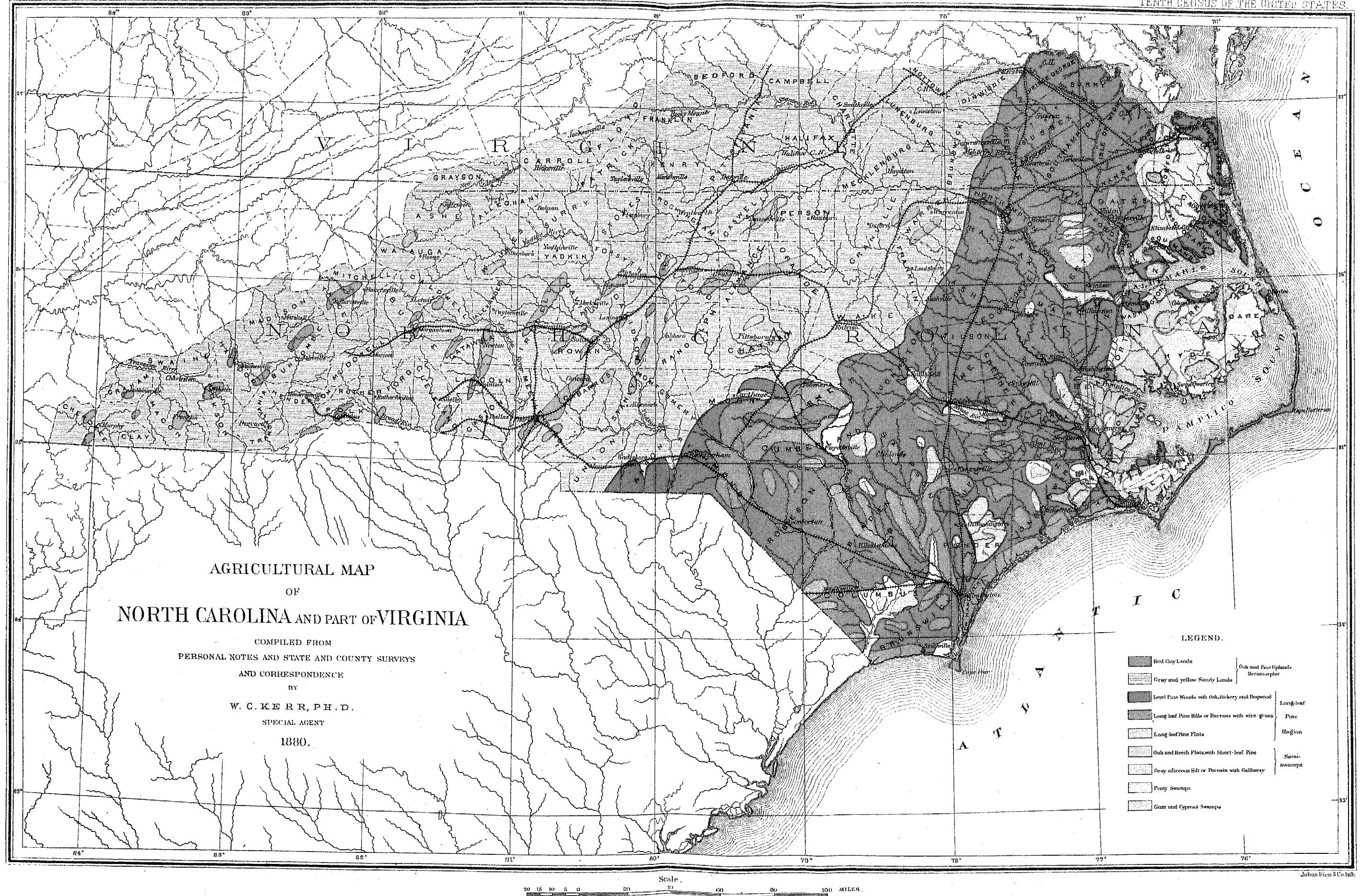
COTTON PRODUCTION IN NORTH CAROLINA.

TABLE II.—ACREAGE AND PRODUCTION OF LEADING CROPS—Continued.

Counties.	COTTON.		TOBACCO.		CORN.		SWEET POTATOES.		RICE.		OATS.	
	Acres.	Bales (475 lbs.).	Acres.	Pounds.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Pounds.	Acres.	Bushels.
OAK UPLANDS REGION—continued.												
Catawba	5,175	2,012	49	26,380	21,248	358,210	205	19,325	.....	.....	7,506	64,236
Lincoln	7,442	2,045	15	6,085	19,338	313,907	126	19,179	1	1,230	6,313	44,939
Gaston	10,949	4,588	7	2,180	24,678	373,472	187	19,290	.....	.....	6,899	50,244
Cleveland	19,238	6,126	28	5,122	31,389	390,281	399	35,834	1	885	10,959	62,211
Rutherford	9,079	2,070	38	12,008	32,783	394,062	343	28,226	1	609	6,106	31,971
Randolph	595	205	45	11,101	35,338	477,168	257	19,809	.....	.....	13,524	88,380
Guilford	283	114	910	422,716	39,790	519,185	188	20,302	.....	.....	20,774	120,723
Alamance	211	91	1,688	695,013	24,628	305,874	139	13,252	.....	.....	9,618	48,869
Person	2	1	5,808	3,012,887	19,872	241,523	152	12,843	.....	.....	9,821	50,926
Caswell	6	4	10,174	4,336,664	25,063	301,041	409	24,029	.....	.....	14,441	101,398
Rockingham	5	3	9,332	4,841,259	25,175	392,707	273	27,911	.....	.....	15,206	130,266
Stokes	13	7	4,690	2,131,161	19,969	338,781	384	19,860	.....	.....	8,408	72,301
Forsyth	16	10	1,093	822,788	20,920	335,164	227	18,447	.....	.....	11,780	95,304
Davie	790	302	1,205	633,339	22,125	438,595	65	6,231	.....	.....	13,300	139,126
Yadkin	87	26	425	177,595	21,735	343,070	102	8,206	.....	.....	11,289	79,443
Surry	3	1	2,136	905,250	25,834	397,143	407	24,069	.....	.....	9,199	70,737
Wilkes	107	29	110	33,211	34,865	480,089	208	22,255	.....	.....	8,240	55,300
Alexander	617	182	23	11,799	16,789	212,382	92	9,237	.....	.....	7,503	51,752
Caldwell	30	12	75	25,884	17,315	274,495	210	21,071	2	1,649	3,880	30,592
Burke	752	301	58	20,079	22,613	325,656	138	11,853	8	4,308	3,455	21,702
McDowell	23	9	100	30,541	17,075	265,934	115	12,707	2	545	1,690	13,111
Polk	1,646	302	4	931	10,632	199,315	93	5,116	.....	.....	877	5,786
Total	341,166	143,546	53,454	25,292,847	1,039,072	14,140,083	11,546	957,484	15	9,170	987,176	2,787,822
TRANSMONTANE REGION.												
Alleghany .....	.....	.....	8	2,049	7,201	122,587	3	285	.....	.....	1,933	10,365
Ashe .....	.....	.....	60	11,064	15,616	277,027	4	411	.....	.....	3,357	37,955
Watauga	10	3	23	7,216	8,227	148,204	7	769	.....	.....	1,828	23,205
Mitchell	15	6	77	20,647	11,894	209,131	35	2,661	.....	.....	3,990	48,845
Yancey .....	.....	.....	84	33,898	11,200	205,650	26	2,113	.....	.....	3,057	43,631
Madison	12	4	1,026	897,911	17,816	348,858	25	1,764	.....	.....	4,238	38,816
Buncombe .....	.....	.....	947	475,428	20,108	490,544	87	5,872	.....	.....	6,907	62,679
Henderson	10	4	29	4,087	16,407	227,411	40	2,627	.....	.....	2,008	23,087
Transylvania .....	.....	.....	10	3,353	9,762	154,769	34	3,446	.....	.....	257	2,870
Haywood .....	.....	.....	100	39,510	17,254	314,446	36	2,405	.....	.....	4,099	35,834
Jackson	16	6	21	4,801	12,793	188,521	181	10,273	.....	.....	1,521	9,440
Macon .....	.....	.....	46	9,154	14,423	222,855	102	11,214	.....	.....	1,621	12,209
Swain .....	.....	.....	11	1,166	6,809	100,548	21	2,154	.....	.....	757	4,301
Graham .....	.....	.....	4	1,095	4,222	66,092	89	5,460	.....	.....	628	3,914
Clay .....	.....	.....	25	5,771	7,810	113,462	109	7,053	.....	.....	1,280	7,607
Cherokee .....	.....	.....	42	8,411	14,507	227,650	158	11,789	.....	.....	1,534	11,657
Total	63	23	3,113	1,445,061	205,049	3,417,750	907	70,306	.....	.....	40,525	377,413

PART I.

PHYSICO-GEOGRAPHICAL AND AGRICULTURAL DESCRIPTION
OF
NORTH CAROLINA.



OUTLINES OF THE PHYSICAL GEOGRAPHY

OF THE

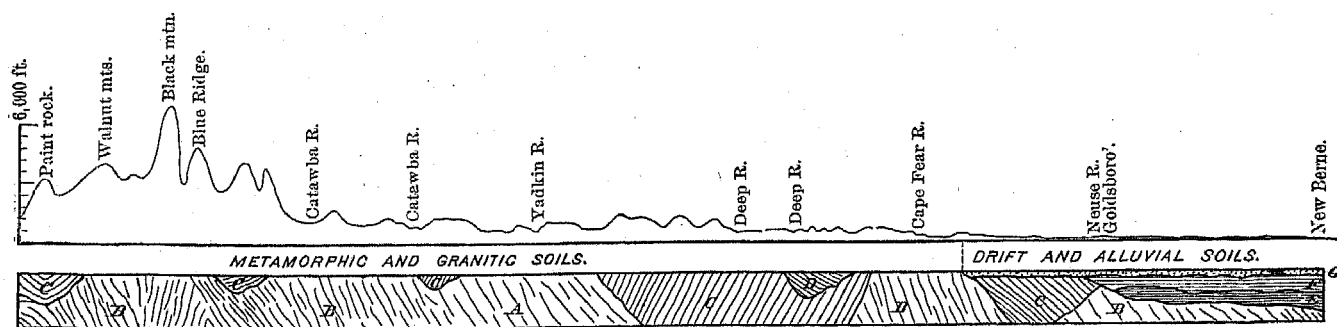
STATE OF NORTH CAROLINA.

North Carolina lies east and west across the Atlantic slope of the Appalachians in a long, narrow, rudely triangular belt, its narrow western end resting on the highest plateau and summit of that continental system of mountains, and its eastern broader end spread out in a low, level, and gently undulating plain on the sea-coast. Its length east and west is 500 miles; its mean breadth about 100 miles, the western extremity being only 15 miles wide, while its broadest part, near the sea-coast, in the meridian of Wilmington and Cape Fear river, reaches a breadth of 187½ miles. This state is situated between the meridians of 75° 27' and 84° 20' west longitude and 33° 50' and 36° 33½' north latitude, and about midway between the great lakes of the north and the Gulf of Mexico. If on a map of the United States the map of this state was detached, and its western end swung northward on its easternmost point as a pivot, the western extremity would touch the north shore of lake Ontario; swung southward it would reach the Gulf.

The area of the state is 52,250 square miles, of which 3,670 is water surface, leaving a land surface of 48,580 square miles.

TOPOGRAPHY.—The ascent of the Atlantic slope from the sea is very gradual in the latitude of this state, more so than in the states north and south. The obvious reason is that the greater elevation of the mountains here is more than compensated by the notable protrusion of the coast-line of this state into the sea. If on a map of the United States a straight line be drawn from Saint Augustine, Florida, to Sandy Hook, it will pass more than 100 miles west of the eastern cape of North Carolina. If, then, the ascent of this slope be followed westward from the easternmost point of the coast-line along a median parallel, it will be found that for the first 100 miles the rise is but little more than half a foot to the mile; for the second 100 miles it is only 3½ feet; for the third 100 miles 5 feet; and for the last 75 miles, to the foot of the Blue Ridge, 8 feet per mile; aggregating 1,500 feet in 375 miles. If the steepest ascent be taken in a northwest direction at right angles to the trend of the coast and of the Appalachians (which is about N. 60° E.) the first hundred miles give a rise of 200 feet, or nearly 2 feet to the mile, and the acclivity for the next 130 miles, to the foot of the Blue Ridge, is 10 feet per mile, making 1,500 feet in 250 miles.

The cismontane plateau rises from an elevation of 1,000 feet on the east to 1,500 feet along its western border, where it is quite rough and mountainous. The Blue Ridge is an escarpment of from 1,500 to 2,000 feet average elevation above the plateau at its base, rising in some of its peaks to nearly 6,000 feet of absolute elevation. The region west of this chain is a long, narrow, elevated mountainous plateau, bounded westward by the high and massive range of the Smoky mountains.



SECTION FROM STATE LINE AT FRENCH BROAD WATER GAP TO SEA LEVEL AT NEW BERNE.

A, granite; B, gneiss and schist; C, metamorphic slates; D, Triassic sandstones; E, Cretaceous greensand; F, Tertiary sands, clays, and limestones; G, Quaternary sands and clays.

TOPOGRAPHICAL DIVISIONS.—From the preceding statement it is obvious that, topographically, the state is naturally divided into four regions, or zones, parallel to each other and to the Appalachian axis and the coast, viz, *Eastern, Midland, Piedmont, and Mountain divisions.*

The Eastern division.—This division extends from 110 to 125 miles inland from the coast to the lower falls of the rivers, rising very gradually to about 200 feet along its northwestern border, a little less toward the north, and a little more to the southward. This boundary is clearly enough defined by a straight line from Weldon, on the Roanoke river, to the point where the Yadkin (or Pedee) river crosses the southern border of the state. The total area is nearly 24,000 square miles; land surface, 20,000 square miles; and it may be described summarily in a single word as one broad *champaign*. Its surface is nearly level or slightly undulating, except along the river courses, on the upper reaches of which are found bluffs and hills. The rivers from the interior cross it in a transverse direction, dividing it into half a dozen broad, flat swells, which sink down toward the coast to within a few feet of tide-level. The region is further characterized by numerous and large sounds, bays, and wide tidal rivers, by extensive swamps and marshes, and by wide tracts of alluvial and peaty soils, with extensive cypress and juniper forests near the coast, and of sandy soils inland having vast forests of long-leaf pine.

The Midland division rises toward its western limit to about 1,000 feet, and has an average elevation of about 650 feet. Its breadth is nearly 100 miles, and its area some 15,000 square miles. The surface is generally hilly and rolling, and sometimes quite rough near the larger rivers, which have cut their valleys in a southeasterly course across it often to depths of 200, 300, and 400 feet below the level of the broad-backed swells or table-lands between them. This and the two following divisions are regions of oak forests and granitic soils.

The Piedmont division.—This plateau slopes up from 1,000 to 1,200 and 1,500 feet at the foot of the Blue Ridge, having an average elevation of near 1,200 feet. It is from 60 to 70 miles wide, and has an area of about 7,000 square miles. Its surface is generally hilly, and often rugged, especially toward the western side, where numerous high and precipitous spurs project eastward and southward from the Blue Ridge. Two of these, the South mountains and the Brushy mountains, traverse almost its entire breadth in a nearly east direction, that is, diagonally, and throw off many secondary spurs and ridges, thus carrying its mountainous features to the borders of the midland division. These spurs frequently rise to an elevation of 1,000 and 1,500 feet and more above the intervening valleys. In this region rise most of the great rivers already referred to, whose waters have so profoundly modified the topography of the two preceding divisions.

The Mountain division.—This is a high plateau, bounded eastward by the straggling, irregular, knobby chain of the Blue Ridge, which attains its greatest elevation of almost 6,000 feet midway of the state. Its average elevation is nearly 4,000 feet, most of its gaps being above 3,000 feet; but toward the southern and northern borders of the state it drops to an altitude of near 3,000 feet, its lower gaps being but little above 2,000 feet. Seen from the east, this chain presents the aspect of a steep and rugged escarpment springing suddenly from the Piedmont plateau to an altitude of 2,000 and 3,000 feet and more above it, while from the west it appears as a low and very ill-defined range of scattered and irregular knobs and ridges of the moderate elevation of 1,000 or 2,000 feet above that plateau, which itself has an average altitude of about 2,700 feet, its valleys being 2,000 feet, and its higher tables and benches reaching 3,500 and 4,000 feet. The western boundary of this division is that of the state; that is, the Smoky mountains. The area of this division is 5,700 square miles. These two parallel bounding chains are separated by from 30 to 50 miles, but at the Grandfather plateau they approach within 10 miles, diverging again northward.

This plateau is the culminating region of the Appalachian system, and contains not only its heaviest masses, but its highest summits, Mitchell's peak, in the Black mountains, being 400 feet higher than Mount Washington, and a dozen other peaks surpassing that summit of the White mountains, and it is therefore the most elevated region of the United States east of the Mississippi river. It is traversed north and south by half a dozen cross chains, which are in some cases higher than either of the principal ranges, some of them being more than 6,000 feet, the Black, with Mitchell's peak, 6,688 feet, being one of these cross chains.

The plateau is thus subdivided into a number of smaller plateaus or basins, bounded on all sides by high mountains, having each its own independent system of drainage. The Blue Ridge being the divide between the waters of the Atlantic and the Mississippi, all the rivers of this region, except those which rise north of the Grandfather plateau, flow northwestward into the Tennessee river, the New river (Kanawha) flowing northeastward and reaching the Mississippi by way of the Ohio.

CLIMATE.—The geographical position of this state, together with its topographical features, give at once the controlling conditions of its climate. Its situation would give a middle temperate climate. The position of its eastern end on the Atlantic, and the projection of this end southward along the coast below the parallel of 34°, together with its near approach to the Gulf Stream, which hugs the shore closely at this point, give this part of the state a subtropical character. The isotherm of this southern angle is 66°, the same as that of southern Alabama, middle Mississippi, and middle Texas, while the great elevation and inland recession of the western section bring its climate within the cold temperate zone, the isotherm for this region corresponding to that of middle New England and Upper Canada, although it is not subject to the same extremes of either heat or cold, the range of temperature being less by from 5° to 12°. The average mean annual temperature for the state is 59°; for the eastern region, 61°; the middle, 58°; the western, 52°. The summer temperatures are, respectively, 77° for the state, and 79°, 77°, and 70° for the several regions; the winter temperatures for the state, 43°, and for the regions, 46°, 44°, 38°, respectively. The hottest month is July, and the coldest December.

The average annual *rainfall* for the whole state is 52 inches; for the east, middle, and western portions, 60, 45, and 58 inches, respectively. This rainfall is distributed pretty uniformly through the year, except that August shows a considerable excess of precipitation in the eastern and middle regions and February in the western; and the summer rainfall exceeds that of the other seasons considerably in the eastern and very slightly in the middle, while the amounts for the winter and summer are nearly equal in the west, autumn being the driest season in all sections.

The *prevalent winds* in all sections of the state are from the west, but most notably in the western section; and of the westerly winds, the southwest is the more common in the eastern division, the northwest in the middle division, and the west in the mountain region. The next in order of importance, except in the western division of the state, is the northeast wind. The east wind has no prominence in any quarter of the state, nor has the southeast wind, except on the immediate coast, and the south wind, except in the eastern section, is equally unimportant.

The winds which bring rain are mostly southwesterly. Thunder-storms come generally from the west, winter rains frequently from the northeast, and in all seasons occasional rains, and sometimes very heavy ones, come from the east and southeast. These statements will need modification for special localities, particularly in inclosed mountain valleys, where the direction of the rain-bearing winds is governed by the local topography. In some of these the west is the rainy quarter; in others the east; and in still others the southeast.

The average annual snowfall is 5 inches in the middle region, 2 inches in the east, and 14 inches in the west. The snow-clouds come generally from the northeast, sometimes from the north, and rarely from the southwest.

GEOLOGICAL FEATURES.—The eastern topographical division is mantled over with a thin covering of *Quaternary* gravels, sands, and clays, having a thickness of one, two, or three score feet, being entirely removed in many places, and thinning out toward its northwestern margin. Underneath this formation is the *Tertiary*, of no greater thickness or persistence. *Miocene* clays, sands, and shell-beds (the so-called marls) crop out in the depressions and along the streams over nearly the whole breadth of the division, and in the southern half of it *Eocene* calcareous clays, chalk-beds, and shell limestones show themselves in the river beds and bluffs, occasionally coming to the surface elsewhere in the lower levels of the region. As we ascend the courses of the rivers, Cape Fear for example, the Eocene is represented by beds of lignitic clay, and then of sand and gravel and of purple and white kaolin clays. This formation is limited in thickness like the preceding, and thins out toward the coast, as well as inland.

The *Cretaceous* is seen only in the beds of a few of the larger rivers south of the Neuse, and usually only in the lower parts of the bluffs at low water. This formation is represented by loose and half-compacted greensands, with occasional shell-beds. Toward the northwestern limit of the division the upturned edges of the Archæan rocks, gneisses, slates, and quartzites appear in the beds and banks of the rivers from the Roanoke to the Pedee, and occasionally project above the sands and gravels at other points between. Along this margin of the division, and touching it near the Pedee, on the southern border of the state, and again at the forks of the Cape Fear, lies a narrow strip of *Triassic* rocks, red and gray sandstones, clays and conglomerates, with several seams of bituminous coal, one of them 6 feet thick and of good quality. These rocks are tilted toward the southeast at an angle of from 10° to 30°. The average breadth of the belt is 5 or 6 miles, which widens to 12 miles between Raleigh and the University and thins out toward the northern border of the state. The coal outcrop follows the course of Deep river about 30 miles. These rocks lie in a trough along the eroded edges of the nearly vertical Archæan slates and schists. This Triassic terrane is repeated in all its features along the northern border of the state, occupying a similar trough of from 2 to 4 miles in width along the upper valley of Dan river, extending from a point near Danville to 40 miles west. The dips here are reversed, being northward, and are much steeper—from 30° to 50° and 70°. The coal of this terrane is semi-bituminous, and the longer bed is only half as thick as that of the Deep River belt. Over the whole surface of the state west of the Quaternary, except these two Triassic tracts of less than 1,000 square miles and two or three small patches of primordial on the western border, the Archæan rocks alone have place. As the covering of sand and gravel disappears a zone of gneisses and schists is uncovered in the region of Raleigh, which is exposed from the northern border of the state, on the Roanoke river, southwestward to the Cape Fear, beyond which it is overlaid by the Quaternary. The dips are still easterly, as in the outcrops through the sand. A few miles west of Raleigh, and at the forks of the Cape Fear and the point where the Pedee crosses the southern border, the great central *slate belt* succeeds with its steep regular *westerly* dips. This is one of the most extensive, conspicuous, and well characterized terranes in the state, and occupies a regular broad zone quite across the middle of the state, its breadth varying from 25 to 40 miles. These rocks consist of a variety of slates—argillite, chlorite, quartzite, conglomerate, graphite, and pyrophyllite. West of this comes a zone of granites and gneisses, with obscure and confused structure and stratification, but with easterly dips. Beyond this granite belt the whole western region of the state is occupied by a great body of gneisses and mica-schists, interrupted by three narrow belts of slates and quartzites and limestones: one, irregular and broken, near the eastern border of the terrane (*e. g.*, King's mountain); the second along the Blue Ridge; the third along the Smoky mountains on the western border. The dip of the first belt is west; of the second, east; of the third, east and west. The rocks of this zone are much broken and disturbed, and the dips very variable in amount, but almost uniformly east. West of the Blue Ridge the gneisses are coarser,

more massive, and thick-bedded, and also more tilted and broken. They are conspicuously characterized by numerous and very large veins or dikes of very coarse granite, in which have been opened many valuable mica mines.

The whole Archæan formation in the state is metalliferous, containing large bodies of magnetic iron ore and hematites, and gold and copper ores in all its zones from east to west. They have yielded also a notable number of gems, and the species of minerals, many of them of great rarity, number 180.

AGRICULTURAL REGIONS.—The agricultural regions do not correspond with the topographical divisions. The eastern division is subdivided agriculturally into two subordinate regions. That which lies next the coast may be denominated the *seaboard region*. This is a region of swamps and savannas and wide alluvial tracts and semi-swamps, as also of oak, pine, and beech flats. Its elevation above tide is limited to 5 or 10 feet for the most part, only occasionally rising to 15 or 20 feet. It includes also tracts of marsh on the shores of the sounds and the margins of long-leaf pine ridges, and the sea-shore is formed by a narrow fringe of sand islands, which separate the sounds from the sea.

The second region, which lies next westward, may be described as the *long-leaf pine region*. The soils of this region are predominantly sandy. It includes the soils characterized as "sand-hills or pine barrens" and the level "upland piny-woods soils", the growth of the former being almost exclusively long-leaf pine, with a scrub growth of black-jack oak and scattered tufts of wire-grass, and that of the latter long-leaf pine, mingled with the short-leaf species (*Pinus taeda* and *P. serotina*), oaks, hickory, dogwood, etc., its soil being a gray sandy loam. There are also large tracts of long-leaf pine flats and mixed long- and short-leaf pine and oak flats with similar soils, but of finer and closer texture.

The two next topographical divisions (Midland and Piedmont) may be included in one agricultural region, viz, the *oak uplands region*, and the western division will be called the *transmontane region*. From the description before given of the geology of these two regions of the state it is evident that the soils are of every variety of texture and composition, corresponding to the whole wide range of the metamorphic or Archæan rocks. They may be grouped in a general description under the designation of gray and yellow sandy and gravelly loams and red-clay soils. The subsoil, generally yellow or red clay, is occasionally gray sandy or gravelly loam, and in the bottoms often pipe-clay. In general, it may be stated that wherever the underlying rocks are hornblende, composed of syenite, hornblende schist, or trap, the soils are red or mulatto or chocolate-colored and clayey.

THE SEABOARD REGION.

This region abounds in lakes, bays, rivers, and sounds. Its water surface covers upward of 3,000 square miles. That portion which lies between the two great sounds, Albemarle and Pamlico, covers an area of above 2,000 square miles, only a small part of which rises more than 10 feet above tide, a large portion being below 5 feet. The major part of this intersound tract, formerly called *Alligator swamp*, is swamp, peat, and marsh land. There are several lakes in the interior of this swamp which are bordered by narrow fringes of rich black-loam soil of inexhaustible fertility. These lakes are, or were, covered with a heavy growth of gum (tupelo), cypress, ash, maple, etc. The more peaty and untillable tracts abound in cypress and juniper, and have long furnished the markets of the continent with these timbers, while those lying next the sounds and rivers are frequently semi-swamps or oak, beech, and pine flats, and have a rich gray or ash-colored clay-loam soil. That portion of the seaboard region which lies northward of Albemarle sound consists mainly of low-lying, level, clay-loam lands or semi-swamps, which are heavily timbered with oaks, hickory, ash, maple, and short-leaf pine (*Pinus taeda*), often passing into cypress and juniper swamps along the rivers and into the great *Dismal swamp*, which lies partly in this state.

These lands, when cleared and drained, resemble the prairie lands of the northwest, and equal them in fertility. Along the ridges or swells between the bay-like rivers of this section are narrow tracts of sandy soil with long-leaf pine growth. A large part of this Albemarle section also lies below the level of 10 feet above tide. Similar tracts to those above described, that is to say, oak and pine flats, are found lying also near the bays and water-courses and fringing the swamps in the southern parts of the seaboard region along the coast to the South Carolina line.

The tops of the higher swells of land between the great rivers of this region, and sometimes the slopes and lower levels, are frequently occupied by the description of swamp land known as "pocoson". These have for the most part a close, impervious, fine sandy, gray or ash-colored soil, with patches of cold, stiff brick-clay and of black soil composed of coarse sand and vegetable matter. The subsoil is of the same texture, with a little clay, and is of a yellowish color. The pocoson is commonly covered with a scattered or clumpy growth of scrub pine (pond pine, *P. serotina*), with clumps of white bay or with copses of gallberry bushes and bramble vines and tufts of wire-grass and broom-sedge, and an occasional loblolly pine (*P. taeda*), and are quite valueless. The pocoson lands occupying this topographical position are the sources of the tributaries of the rivers, and are flat and covered with water more than half the year, but are dry and cracked in summer. They are usually fringed about with narrow, irregular strips of canebrake or gum and cypress swamps of dark loamy soils, and with oak flats, which have gray clay-loam soils. These border tracts are very fertile.

The savanna is another type of soil, and is found here and there among the pocosons and pine flats in patches of from a few hundred acres to 3 or 4 square miles in extent. These savannas are very flat and treeless, and are covered with grass. The soil is wet, cold, close, fine sandy, often black with humus; the subsoil is yellowish, with more clay.

On or near the highest parts of the divides or water-sheds are frequently found small lakes of 3 or 4 to 15 or 20 square miles. In this case there is commonly a margin, of varying width, of rich swamp (gum and cypress) lands next the lakes. There are also here and there throughout the region narrow belts of long-leaf pine and sandy land, which frequently reach the coast south of Pamlico.

A most notable feature of the region is the fringe of linear sand islands, called "The Banks", that wall off the Atlantic along the entire coast. These constitute, in fact, an almost continuous sand-dune, broken here and there by narrow inlets, having a breadth of from a few rods to a half mile or more, narrowing occasionally to a mere low beach, over which the waves break into the sound, and again widening to 1 or 2 miles, as at Hatteras, and to 3 or 4 miles opposite Albemarle sound. This dune, or sand wave, is moving inland, the fine particles being continually carried over into the sounds, converting their outer margins into marsh, and gradually adding these to their own breadth. The average elevation of the crests of these islands, which are generally next to the sounds, is only a few feet or yards above high tide, but they are commonly broken into rounded hillocks 25, 30, and 40 feet high. Opposite Roanoke island these hillocks rise to a height of 75 and 90 feet, and in front of Albemarle sound they exceed 100 feet. Here they are quite bare, and rise in great waves, which are continually shifting their places, moving in a southwest direction at the rate of from 1 to 3 feet per annum. These islands were originally, and are still here and there, covered with forests of small oaks, hickory, short-leaf pine, dogwood, etc., and in many parts with red cedar and live oak and the noted evergreen shrub, cassena, or yaupon. The dwarf palmetto is found in the white-oak flats south of Pamlico and in the region of the Cape Fear, and as far up as Hatteras the larger species (sabal palmetto) thrives.

A very small proportion of the area of the seaboard region is adapted to cotton, not more than 100 bales being produced in some counties, and the whole product of the region does not reach 37,000 bales. The chief crops are corn, wheat, sweet potatoes, peanuts, and rice, and latterly, in many sections, vegetables and Irish potatoes for the northern market. Lumbering in pine, cypress, and juniper and turpentine-getting have long been among the most important industries. The shad and herring fisheries are conducted on an immense scale, often with seines $1\frac{1}{2}$ miles long worked by steam, and the taking of other species of fish carries this form of industry through nearly the whole year. The region abounds in natural pasturage, and is well adapted to cattle and sheep raising.

The following analyses, made for the North Carolina geological survey by Messrs. Bogardus and Hanna, are given of samples of the different classes of soils of the seaboard region:

1. SOILS OF GUM AND CYPRESS SWAMPS.—All these are fine corn soils, but will not grow cotton, as it runs to weed and never matures:

No. 21. *Dark mucky, porous soil* on the southern margin of Mattamuskeet lake, in Hyde county; 6 feet deep. The mineral matter is in a state of very fine comminution. Timber growth, gum (tupelo), cypress, ash, poplar (*Liriodendron*), etc. The land produces from 50 to 60 bushels of corn to the acre (Emmons).

No. 22. *Dark mucky, porous soil* from the north side of Mattamuskeet lake, Hyde county; same depth, growth, etc. Fields alongside those from which the samples were taken have produced from 50 to 60 bushels of corn to the acre for more than 100 years without manure or change of crop (Emmons).

No. 23. *Dark mucky, porous soil*, 3 to 4 feet deep, with same growth, from a large swamp on Blount's creek, on the south side of Pamlico river, 12 miles from Washington, Beaufort county; sample taken 1 foot deep.

No. 24. *Dark muck and porous soil*, 2 feet deep, from Bear swamp, in Pamlico county.

No. 25. *Cypress and gum swamp soil*, near the southern border of White Oak swamp, Jones county, 2 to 4 feet deep. Produces 50 bushels of corn to the acre.

No. 26. *Black mucky soil*, 5 to 10 and 15 feet deep, from Big swamp, on the border of Bladen and Robeson counties; a tract of 30,000 acres. Timber growth same as No. 21.

No. 27. *Black and mucky soil* from swamp on Eagle's island, across the Cape Fear river from Wilmington, Brunswick county, of many fathoms depth. Growth, gum, cypress, cane; an inexhaustible rice soil.

No. 28. *Black and mucky soil* from a field cultivated in rice 100 years, which borders No. 27.

2. SOILS OF SEMI-SWAMPS, AND OF OAK, BEECH, AND PINE FLATS.

No. 29. *Dark gray soil (semi-swamp)* from margin of Bear swamp, Pamlico county; depth, 2 feet; the subsoil is lighter colored and sandy. Growth, gum, (tupelo and sweet), poplar, maple, and ash. This is a good cotton land, and much of it occurs in this county and region.

No. 30. *Dark gray and gravelly loam* from beech flat at Stonewall, south side of Bay river, Pamlico county. Growth, beech, gum, maple, and oak. This is an excellent cotton and corn land, and makes a bale to the acre. Large bodies of this description of land occur in the county.

No. 31. *Light-gray to ash-colored soil* from a white oak flat half a mile wide at the head of North river, on the southern border of Open Ground Prairie swamp, in Carteret county. Growth, white oak, gum, maple, short-leaf pine (*P. taeda*), and dwarf palmetto. This soil represents extensive bodies of land on the borders of this and all the great swamps south and west of this point, and is a good corn and cotton land.

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No. 32. *Gray light loamy soil* from semi-swamp near Morehead City, Carteret county. Growth same as in No. 29, and like that in appearance and adaptations

No. 33. *Gray gravelly soil of oak flat* near Whiteville, Columbus county, taken 1 foot deep. Growth, willow oak, ash, sweet and black gums, poplar, and maple. This soil represents a great area of land in the region on the borders of the swamp, and is a good cotton and corn soil.

No. 34. *Dark-gray and ash-colored soil* of Dover pocoson, flat and wet, Craven county; dark gray and ash-colored, and has a growth of scrubby pine, wire-grass, and low thicketty brush. This soil has a close, fine texture; and is as impervious as clay. This is a common type of pocoson, but often the sand is coarse and the vegetable matter runs up to 80 and 90 per cent., in which case the growth is gallberry and scrub pine, with clumps of white bay bushes and brambles.

No. 35. *Savanna soil*, Beaufort county, near Pungo river, a level prairie of 4 or 5 square miles, flat, treeless, and covered with grass. This soil is gray to yellowish in color, has a close, fine texture, and is almost impervious to water.

No. 36. *Soil of Burgaw savanna*, in Pender county, 25 miles north of Wilmington. This soil is like the last, and is nearly as extensive. It is dark colored, with a yellowish, more clayey subsoil. Both this and No. 35 are fair soils when drained.

Gum and cypress swamp lands.

	HYDE COUNTY.		BEAUFORT COUNTY.	PAMLICO COUNTY.	JONES COUNTY.	BLADEN COUNTY.	BRUNSWICK COUNTY.	
	LAKE MATTAMUSKEET.		DLOUNT CREEK SWAMP.	BEAR SWAMP.	WHITE OAK SWAMP.	BIG SWAMP.	EAGLE'S ISLAND.	
	South side.	North side.						
	Soil.	Soil.					Soil.	Cultivated soil.
	No. 21.	No. 22.	No. 23.	No. 24.	No. 25.	No. 26.	No. 27.	No. 28.
Insoluble residue.....	43.00 } 43.03	34.60 } 35.00	50.24 } 51.18	71.30 } 77.20	64.74 } 68.34	52.20	32.86	62.22
Soluble silica.....	0.03	0.40	1.86	5.90	3.60			
Potash.....	0.16	0.13	0.79	0.08	0.05	0.60	0.96	0.46
Soda.....	0.13	0.10	0.69		0.02		0.26	
Lime.....	0.12	0.27	1.62	0.12	0.10	1.16	0.50	1.54
Magnesia.....	0.12	0.27	1.08	0.13	0.20	0.55		0.23
Peroxide of iron.....	} 6.40	{ 3.70	{ 13.78	{ 1.39	{ 0.30	{ 6.09	{ 4.92	{ 20.35
Alumina.....								
Phosphoric acid.....	0.30	0.12		0.00	0.06	0.84	0.45	Trace.
Sulphuric acid.....	0.04		0.22		0.21	0.65	1.30	0.23
Organic matter.....	47.10	38.80	20.80	17.50	22.80		59.19	12.43
Water.....		12.30		2.30	4.20	38.41		
Total.....	97.45	95.84	100.08	100.01	99.70	100.00	100.00	97.46

Semi-swamps, oak, beech, and pine flats.

	PAMLICO COUNTY.		CARTERET COUNTY.		COLUMBUS COUNTY.
	BEAR SWAMP.	BAY RIVER.	PRAIRIE SWAMP.	NEAR MOREHEAD.	NEAR WHITEVILLE.
	Soil.	Soil.	Soil.	Soil.	Soil.
	No. 29.	No. 30.	No. 31.	No. 32.	No. 33.
Insoluble residue.....	62.64 } 66.50	60.28 } 81.33	30.84 } 34.54	69.07 } 75.87	85.15 } 86.72
Soluble silica.....	3.86	12.05	3.70	6.80	1.57
Potash.....	0.90	0.24	0.07	0.07	Trace.
Soda.....	0.68		0.02		0.45
Lime.....	0.68	0.29	0.44	0.20	1.67
Magnesia.....	0.58	0.09	0.22	0.07	0.38
Peroxide of iron.....	{ 10.30	{ 1.46	{ 1.18	{ 1.12	{ 5.12
Alumina.....					
Phosphoric acid.....	Trace.	0.04	0.08	0.13	0.02
Sulphuric acid.....	0.43	0.03	0.06	0.08	0.03
Organic matter.....	{ 19.60	{ 9.60	{ 7.70	{ 18.00	{ 4.41
Water.....					
Total.....	99.67	100.08	99.50	99.59	100.12

Pocoson and savanna soils.

	CrAVEN COUNTY.	BEAUFORT COUNTY.	PENDER COUNTY.
	DOVER POCOSON.	PUNGO SAVANNA.	BURGAW SAVANNA.
	Soil.	Soil.	Soil.
	No. 34.	No. 35.	No. 36.
Insoluble residue.....	} 70.50	{ 86.80 } 90.04	92.06
Soluble silica			
Potash.....		0.02	0.86
Soda.....		0.17	0.34
Lime.....	0.01	0.20	0.22
Magnesia.....		0.11	0.40
Peroxide of iron.....	} 0.76	{ 1.16 } 1.81	1.81
Alumina.....			
Phosphoric acid.....		0.11	0.12
Sulphuric acid.....			0.13
Organic matter.....	25.20	4.55	} 4.88
Water.....	2.70	0.55	
Total.....	99.17	100.58	100.02

[Soils Nos. 21 to 28 inclusive represent a class in which great depth is an important factor in determining the degree and duration of productiveness. In some cases, as in Nos. 21, 24, and 25, the plant-food percentages are quite low; yet, being distributed through an easily penetrable soil stratum of unusual thickness, and containing a relatively large proportion of lime, there is cause for their high productiveness when fresh. But this evidently cannot endure long. In the cases of Nos. 22, 26, 27, and probably No. 23, the plant-food percentages are such as would be accounted from fair to very high, and, taking the depth into consideration, such soils as Nos. 26 and 27 are of extraordinary fertility. If the comparison between Nos. 27 and 28—the former fresh, the other cultivated in rice for a century—be a fair one, the influence of cultivation in diminishing the prominent ingredients, potash and phosphoric acid, is here very strikingly shown by the analysis; but the great difference in the respective amounts of humus and insoluble matter renders the strict comparability somewhat doubtful.]

Soil No. 29, said to be from the margin of Bear swamp, seems to differ only in depth from that of the lower lands (Nos. 23, 26, and 27), and resembles them in the large amount of vegetable matter and potash. Soil No. 24 differs so widely from this, and in such a manner, as to induce a suspicion that the specimens were exchanged, and that No. 29 is the true representative of the low land of Bear swamp. Both are alike poor in phosphoric acid. Of soils Nos. 30 to 33, the first only has a fair percentage of potash. The rest are low in this respect, No. 33 being apparently very deficient, but its very high percentage of lime ekes out for a time this deficiency as well as that in phosphoric acid. It must be of considerable depth to be at all durable. No. 32 has a good supply of phosphates, with only a moderate amount of lime, while in Nos. 31 and 30 a relatively large lime-percentage offsets a lower one of phosphates.

The analysis of the pocoson soil is too incomplete to determine its character definitely; yet the very small percentages of lime and alumina are instructive. Its defects are probably chiefly mechanical, in that it is a fine silt with very little clay, without enough lime to prevent its being acid or to give it a tendency to tilth. The inference is that, first of all, it should be heavily limed or marled and deeply tilled. Whether or not it is otherwise deficient in plant-food does not appear, but lime is in any case its first need. Its extensive occurrence renders this experiment of great interest.

Of the savanna soils, No. 36 can owe any difficulties in cultivation to its mechanical composition only, it being high in potash and fair in lime and phosphoric acid, while No. 35 is markedly deficient in potash. Liming or marling would also doubtless greatly improve these two soils. It is noteworthy that, on the whole, these seaboard swamp and savanna soils of North Carolina are fairly and sometimes highly supplied with lime; an ingredient so notably deficient in most of the lands bordering the Gulf of Mexico west of the peninsula of Florida. The latter are mostly acid, and their vegetable matter is washed away in the drainage, while on the above soils humus is formed and retained under the influence of lime.—E. W. H.]

THE LONG-LEAF PINE REGION.

The second division, or long-leaf pine region, covers a large part of the state, roughly estimated at 15,000 square miles, and includes within its area all or parts of forty or more counties lying between the metamorphic or oak uplands region and the sea-coast.

This region it may be subdivided into three classes, viz: *Sandy pine barrens*, *level and rolling upland piny woods*, and *pine flats*, in all of which the long-leaf species of pine is predominant. The entire region is characterized, as stated, by gray and yellow sandy loams and sandy soils.

Sandy pine barrens.—Those portions of this region which are properly characterized by the term “sand-hills”, or “pine barrens”, lie for the most part in the southern half of the belt. The rivers which traverse and the water-courses which rise in it are frequently bordered by wide tracts of from 1 to 3 and 5 miles’ breadth of cypress swamp, which is characterized by a deep black peaty soil, and by a growth of cypress, gum, ash, and maple, and often of cane. These soils, when drained, are of the greatest fertility and durability. The soils of the sand-hills are almost pure sand, and are of extreme infertility. This description of soil occupies a comparatively small proportion of the whole area.

The sandy soil is generally only from a few inches to 1 or 2 feet deep, occasionally 3 or 4 feet, and is commonly underlaid by a yellow or brown sandy or gravelly subsoil; but sometimes there are mere alternations of beds of different colored sand to unknown depths, and in other cases, at a depth of 8 or 10 feet or more, are half-compacted sandy and gravelly earths, gray and yellow, in which the channels of the streams are cut with steep, canal-like, often vertical banks.

The forests are usually open and park-like, with tufts of wire-grass and occasional patches of tufted broom-sedge (*andropogon*); but often there is an undergrowth of small black-jack and other worthless species of oak.

In the midst of the largest bodies of sand-hill lands there are occasional tracts of a fair grade of cultivable land, generally found on or near the water-courses. The sand-hill soils proper will produce almost nothing; they furnish, however, a scanty pasturage in the swampy tracts which abound along the numerous sluggish streams. The yaupon and the scuppernong grape flourish even in these sand wastes.

Nearly all the lands of this description are found on the waters of the Cape Fear south of the Neuse, and in the southern half of the belt. Only a few small tracts lie north of this section.

The cotton product of this *pine-hill* or *sand-hill* section proper is very small, not exceeding 20,000 bales. The rivers and creeks of this region often have wide tracts of bottom land, or are flanked by swamps or oak and pine flats, and on these are made crops of corn, potatoes, and rice. Cotton is grown on the better class of uplands of mixed oaks and pines, which are interspersed among the sandy tracts.

Level and rolling upland piny woods.—The common type of land of the long-leaf pine region may be characterized as level and rolling piny uplands, the soil being a gray to yellow sandy loam, sometimes clayey or silty, with a forest growth of long- and short-leaf pines, oaks, hickory, dogwood, etc. These lands are of medium fertility, easily drained and cultivated, and constitute the great body of the most valuable cotton lands of the state. Most of the long-leaf pine belt north of the Neuse is of this character, and here one-half of the cotton of the state is made—one-third of it in a dozen counties.

The subsoil is commonly a yellow sandy or gravelly clay, which is found at a depth of from 5 to 8 or 10, and sometimes 20 inches or more. The growth, as stated, is composed of long-leaf pines as the predominant element of the forests, generally mixed with short-leaf pines (which sometimes almost or quite replace them) and with a subordinate oak forest, which changes its character with the changing topography and texture of the soil. In the better grades of rolling and yellow-loam lands hickory and dogwood enter largely, and on the flatter tracts, with their close ash-colored soil, sweet gum, maple, and elm become prominent.

Pine flats.—In some portions of this region, chiefly in the section lying north of the Neuse river and parallel to it, there are wide stretches of open long-leaf pine woods, with a few scattered oaks of small size and stunted gums and low huckleberry bushes, wire-grass, and broom-sedge. The surface is very level, and is interspersed with frequent swampy patches, having a scrubby growth of bay, maple, gallberry, myrtle, and other swamp jungle. The soil is an ash-colored silty clay, with alternating patches of sandy soil, underlaid by a gray stiff clay or fine sand and clay equally impervious. These flats are very unproductive, and are valuable only for turpentine and lumber. North of the Roanoke, lying partly in Bertie and partly in Hertford counties, there is another large body of land of the same character.

Another class of pine flats, more properly pine and oak flats, differs from the ordinary level pine woods in having a more clayey soil, commonly ash-colored, with a clay subsoil, and a frequent large admixture of short-leaf (slash) pine, with post oak and white oak, and are usually more productive and more durable. These tracts generally lie near water-courses. A good example of this description of land is found in Scotland Neck, Halifax county, on Kehukee creek. The typical pine flats, however, have a forest growth almost exclusively of long-leaf pine, sometimes with a few scattered small oaks, post oak and black oak, or a scattered scrubby undergrowth, with a soil and subsoil as above described. These lands are of fair quality, and produce well when properly drained. A good example may be seen about Selma and eastward in Johnston county, and also on Six Runs creek, in Sampson county.

The following analyses (made for the Census Office) are given of samples of the lands of this region:

No. 11. *Light gray soil* from near Sparta, Edgecombe county. Depth taken, 3 inches; growth, long-leaf pine, small oaks, and dogwood. This is a fair type of the “piny-woods cotton land”, is easily cultivated, and is naturally poor, but by composting will produce 1,200 pounds of seed-cotton per acre.

No. 12. *Subsoil* of the above, light yellowish in color, from 10 to 15 inches deep, and underlaid by a brick clay.

No. 13. *Gray sandy loam soil* from Penny Hill, Pitt county, taken 11 inches. Growth, long-leaf pine, oak, hickory, and dogwood; the trees are tall and straight. This is the best cotton land of the level piny woods, and “stands well, wet or dry.”

No. 14. *Subsoil* of the above, a tenacious clay.

No. 15. *Gray sandy loam* of the level piny woods 5 miles north of Princeton, Johnston county, taken 7 inches. Growth, long-leaf pine, small post and black-jack oaks, and wire-grass. This is the "ordinary piny woodscotton land".

No. 16. *Subsoil* of the above, a yellow sandy loam, taken from 7 to 20 inches deep.

No. 17. *Gray sandy loam soil*, taken 3 miles from the upland level piny woods near Weldon, Halifax county, depth 1 inch. Growth, short-leaf pine, oaks, a little hickory, and dogwood. The soil is "light and dry, miry in wet, and bakes in dry weather after much rain".

No. 18. *Subsoil* of the above, a light-yellowish loam.

No. 19. *Soil* from the level upland pine woods near Wilson Court-House, Wilson county.

No. 20. *Subsoil* of "Lousin swamp" lands, 7 miles north of Kingston, Lenoir county, taken from 15 to 20 inches. The soil is a dark loam with much more vegetable matter and less of all the other elements, notably of lime and magnesia. Growth, willow oak, sweet and black gum, maple, and short-leaf pine, scattered and large; a good cotton and corn soil.

No. 37. *Light gray pine flats soil* from a tract of pine flat lands in Johnston county near the town of Selma, around which such lands extend several miles; taken 12 inches deep. Growth, long-leaf pine, small oaks, and sweet and black gum. This soil is somewhat lumpy and clay-like in appearance, but is a fair type of the better quality of pine flats. (Analysis was made by Messrs. Bogardus and Hanna.)

Soils of the level upland piny woods.

	EDGECOMBE COUNTY.		PITT COUNTY.		JOHNSTON COUNTY.	
	SPARTA.		PENNY HILL.		PRINCETON.	
	Soil.	Subsoil.	Soil.	Subsoil.	Soil.	Subsoil.
	No. 11.	No. 12.	No. 13.	No. 14.	No. 15.	No. 16.
Insoluble matter.....	91.438 } 94.384	91.842 } 95.856	77.785 } 81.761	77.520 } 83.435	94.810 } 96.093	93.276 } 96.843
Soluble silica	2.951 }	3.514 }	4.016 }	5.915 }	1.233 }	3.567 }
Potash	0.093	0.087	0.204	0.226	0.085	0.060
Soda	0.093	0.029	0.109	0.090	0.037	0.012
Lime	0.052	0.019	0.177	0.125	0.045	0.037
Magnesia	0.006	0.025	0.073	0.042	0.030	0.018
Brown oxide of manganese	0.031	0.029	0.091	0.090	0.101	0.035
Peroxide of iron	0.753	1.766	4.786	3.315	0.368	0.564
Alumina	1.559	1.563	7.398	3.603	1.314	1.638
Phosphoric acid	0.661	0.101	0.143	0.126	0.071	0.049
Sulphuric acid	0.034	0.040	0.154	0.178	0.048	0.005
Water and organic matter	2.754	1.175	5.760	3.697	2.400	0.534
Total	99.760	100.190	100.646	100.427	100.598	99.895
Hygroscopic moisture	2.391	2.190	6.710	5.847	1.876	0.586
absorbed at	21.8 C.°	21.8 C.°	20.5 C.°	19.4 C.°	25.5 C.°	25.5 C.°

	HALIFAX COUNTY.		WILSON COUNTY.	LENOIR COUNTY.	JOHNSTON COUNTY.
	THREE MILES FROM WELDON.		NEAR WILSON COURT-HOUSE.	"LOUSIN SWAMP" NORTH OF KINGSTON.	NEAR SELMA.
	Soil.	Subsoil.	Soil.	Soil.	Pine-flat soil.
	No. 17.	No. 18.	No. 19.	No. 20.	No. 37.
Insoluble matter.....	91.500 } 93.080	72.058 } 81.937	93.343 } 94.964	91.818 } 94.370	90.13 } 93.80
Soluble silica	1.580 }	2.879 }	1.621 }	2.552 }	3.07 }
Potash	0.185	0.447	0.049	0.051	0.13
Soda	0.047	0.253	0.022	0.050	0.45
Lime	0.123	0.068	0.028	0.060	0.05
Magnesia	0.043	0.161	0.052	0.051	0.70
Brown oxide of manganese	0.111	0.116	0.006	0.009	1.48
Peroxide of iron	1.580	5.244	1.056	0.484	0.02
Alumina	2.900	8.588	1.024	3.740	Trace.
Phosphoric acid	0.117	0.160	0.067	0.087	2.84
Sulphuric acid	0.040	0.013	0.037	0.031	
Water and organic matter	1.678	3.347	2.048	1.690	
Total	99.859	100.329	99.953	100.643	99.47
Hygroscopic moisture	2.344	5.953	1.552	6.146	
absorbed at	29.0 C.°	26.0 C.°	16.0 C.°	16.0 C.°	

[The extremely sandy and droughty soil (Nos. 11 and 12) shows, on the whole, a higher phosphate percentage than might be looked for; but the low percentages of potash and lime and their decrease (instead of the usual increase) downward speaks of little durability. Nevertheless, the application of some lime or marl would here also be followed by good results. Potash manures would probably also help at once.

The surface soil from Pitt county (No. 13) is of good composition as regards the chiefly important elements; but the subsoil of tenacious gray clay, poorer than the surface soil in lime and phosphates, is against it, and shows the need of liming and the use of the subsoil plow.

The land represented by Nos. 15 and 16 is a degree below No. 11, and like it suffers a decrease of plant-food as the depth increases, even as to phosphates. Potash and lime are very low, the phosphates relatively more abundant. The use of lime or marl is here again the first improvement called for; then manure in the widest sense.

In the case of Nos. 17 and 18, the depth of the material designated as subsoil not being given, the arable stratum would appear to be of good composition, except as regards lime, which, relatively to potash and phosphoric acid, is very deficient. Liming ought to increase greatly the production of this soil, which promises fair durability.

The Wilson county soil (No. 19) appears exceptionally poor, especially in lime, it being probably droughty and shallow, its quality decreasing downward.

The Lousin swamp soil is exceptionally poor in potash, but, being doubtless of considerable depth, has a relatively large proportion of lime and phosphoric acid for so sandy a soil.

The pine-flat soil (No. 37), if the analysis represents it correctly, stands only in need of a dressing of superphosphate to render it fairly productive, lime being abundant and potash in adequate supply, while phosphoric acid is very deficient.—E. W. H.]

Toward the western limit of the long-leaf pine belt, where it rises to an elevation of 150 and 200 feet, especially near the streams, the surface is frequently broken and hilly, and has a larger intermixture of short-leaf pine, oaks, and hickory in its forests. Its soils are also of a more open and gravelly texture, and on the slopes near the water-courses is a brown or yellow clay loam, having a predominant growth of oaks, so that this narrow, irregular border tract furnishes a zone of passage from the features of the long-leaf pine region into those of the oak uplands.

Besides the prevalent characteristic forest trees above mentioned there are found, both in the long-leaf pine and seaboard regions, magnolia grandiflora, several species of elm, and, near the southeast shore, live oak and two species of palmetto.

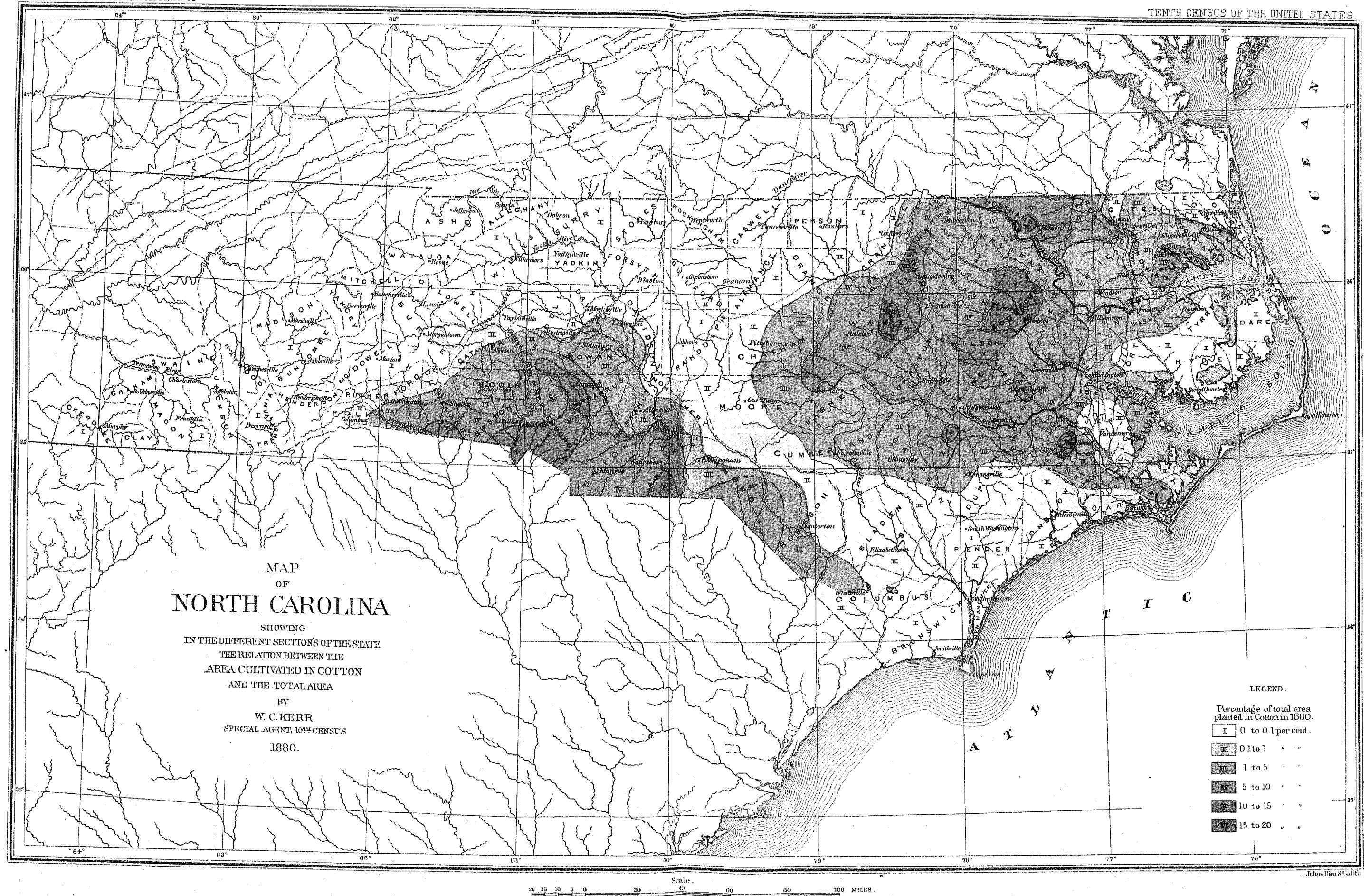
It remains to mention that almost the whole of the long-leaf pine belt and a large part of the seaboard region are underlaid by deposits of shell marl, and the southern half by chalk marl and greensand, which crop out in the river banks and in the ravines, and are often reached by the farm ditches. These deposits are highly calcareous, and contain valuable percentages of phosphates and alkalis, and are commonly uncompacted; and being thus widely distributed, are of immense value to the agriculture of the region. So obvious is their utility that the advancement of agriculture and the cotton product in the several counties may be measured by the number of tons of marl used.

Besides its large crops of cotton this long-leaf pine region produces on a large scale corn, pease, and sweet potatoes, and in a few counties rice and tobacco.

THE OAK UPLANDS REGION.(a)

The third agricultural subdivision, *the oak uplands region*, extending from the western limit of the pine belt to the Blue Ridge, contains, as before stated, every imaginable variety of soil.

The different descriptions of soils usually lie in narrow parallel northeast and southwest belts or zones conformable to the geological structure of the country. Those of this part of the state may be characterized generally as gray, yellow, and brown loams, the higher levels and ridges having more commonly sandy and gravelly loam soils, gray, yellow, or brown, and there are interspersed throughout the region belts and patches of red-clay lands wherever hornblende or trap rocks outcrop. These are generally among the best soils, both as to fertility and durability, and are covered with a heavy growth of oaks, hickory, walnut, etc., pines being absent. The growth of the region generally eastward of the Blue Ridge consists of a great variety of oaks, and hickory, maple, poplar, dogwood, sourwood, and sassafras, with occasional belts of chestnut and chestnut oak on the higher ridges and white pine and hemlock in the foot-hills of the mountains and in the higher coves and gorges. Along the rivers, as well as along the smaller streams, even to the smallest brook, are found patches, and often extensive tracts, of "bottom lands" of fine alluvial soils, which constitute the meadow lands, as well as the most productive and reliable corn lands of the region. These *bottom lands* constitute probably one-tenth of the cultivated area of most of the counties throughout the region. The second bottoms and higher benches or terraces along many of the larger rivers are sometimes of considerable extent, and are very productive; but they are more sandy and less durable than the bottoms proper.



GENERAL REMARKS ON COTTON PRODUCTION IN NORTH CAROLINA.

Among the cotton states North Carolina is seventh in population, eighth in cotton production (389,598 bales), and eighth in bales per acre (0.44). The product in 1870 was 144,935, and in 1860 145,514 bales.

The following tables give various data relating to cotton production:

TABLE III.—SHOWING POPULATION AND COTTON PRODUCTION IN EACH AGRICULTURAL REGION OF THE STATE.

Agricultural regions.	POPULATION.			COTTON PRODUCTION.										
	Total.	White.	Colored.	Percentage of tilled lands devoted to cotton.	Acres.	Bales.	Average per acre.				Total in tons.		Percentage of state's total production in lint.	Average cotton acreage per square mile.
							Fraction of a bale.	Seed-cotton.	Lint.	Seed.	Lint.	Seed.		
Total.....	1, 399, 750	897, 242	532, 508	15. 07	893, 153	389, 598	0. 44	Lbs. 621	Lbs. 207	Lbs. 414	92, 530	185, 060	100	18. 39
Seaboard region.....	193, 268	102, 275	90, 993	13. 34	85, 557	36, 554	0. 43	609	203	400	8, 682	17, 364	9	9. 6
Long-leaf pine region.....	407, 643	200, 977	206, 666	25. 84	406, 367	209, 475	0. 45	630	218	426	49, 750	99, 500	54	32. 4
Oak uplands.....	798, 839	563, 990	234, 849	9. 80	341, 220	143, 569	0. 42	597	199	398	34, 098	68, 196	37	13. 5

TABLE IV.—SHOWING "BANNER COUNTIES", AS REGARDS TOTAL PRODUCTION AND PRODUCT PER ACRE, IN EACH AGRICULTURAL REGION.

Regions according to product per acre.	Average product per acre of the region in bales.	COUNTIES HAVING HIGHEST TOTAL PRODUCTION.					COUNTIES HAVING HIGHEST PRODUCT PER ACRE.					
		Counties in each region having highest total production.	Rank in product per acre in the state.	Cotton acreage.	Total product in bales.	Product per acre in bales.	Counties in each region having highest product per acre.	Rank in total production in the state.	Cotton acreage.	Total production.	Product per acre in bales.	Rank in product per acre in the state.
Long-leaf pine region	0.45	Edgecombe	6	51,880	26,250	0.51	Wilson	9	23,706	13,040	0.55	3
Seaboard region	0.43	Beaufort	4	11,785	6,021	0.51	Brunswick	62	385	244	0.03	1
Oak uplands	0.42	Wake	7	59,916	30,115	0.50	Wake	1	59,916	30,115	0.50	7

In making estimates for this table all counties are excluded whose total production is less than 100 bales: County in the state having highest total cotton production: Wake, 30,115 bales; county in the state having highest product per acre: Brunswick, 0.63 bale, or 903 pounds of seed-cotton; county in the state having highest cotton acreage per square mile: Edgecombe, 91.50 acres.

COMPARISON OF THE AGRICULTURAL REGIONS.—It will be seen by an inspection of Table III that the long-leaf pine region is the cotton region of the state, producing 209,475 bales, or 54 per cent. of the total product, and also showing the largest product per acre, 0.45 of a bale (the average for the state being 0.44), the largest cotton acreage per square mile, 32 acres (that for the cotton region being 18 acres), and the largest cotton acreage per capita, 1.14 (the average being 0.64 acres). With an area of 14,401 square miles and 1,804,900 acres of tilled land, it has 26 per cent. of the latter in cotton.

Of the other two regions the oak uplands take precedence in acreage of cotton per square mile, 13.5 (to 9.6 in the other), and in total production, 143,569 bales, as against 36,554 bales for the seaboard region. The acreage per capita is about equal, 0.43 and 0.44 respectively, and in product per acre the latter has also slightly the advantage, 0.43 to 0.42.

The seaboard region has an area of 8,951 square miles, 641,580 acres of tilled land, of which a little over 13 per cent. is devoted to cotton. The oak uplands region has an area of 25,228 square miles, of which 3,479,607 acres are in cultivation, and a little less than 10 per cent. of the latter in cotton.

The precedence of the long-leaf pine region is still more apparent from some other points of view. Of the 22 counties, 16 produce more than 5,000 bales, 9 more than 10,000 bales, and the product of 3 exceeds 15,000 bales each. In the seaboard region there are only 2 counties whose product exceeds 5,000 bales; and in the oak uplands 8 counties produce more than 5,000 bales, 4 exceed 10,000 bales, and 2 pass 15,000 bales, and the average product per county in each region is respectively 21,000, 2,100, and 5,500 (including only the counties whose product exceeds 100) bales. But although the lead of the long leaf pine region in most respects is so decided, yet the county having the largest yield, and much the largest in the state (Wake), is found in the oak uplands region, producing 30,115 bales,

while the largest yield of a single county in the former region, that of Edgecombe, is 26,250 bales; and the county having the highest product per acre is found in the seaboard region, Brunswick, producing 0.63 of a bale, the highest product of the long-leaf pine region being 0.55 of a bale, in Wilson.

In the long-leaf pine region, and also the seaboard region, the white and colored population are nearly equal; and in the oak uplands, which produces 37 per cent. of the crops, the white population outnumbers the colored in the proportion of 2.4 to 1.

When the crops of the different regions for 1870 and 1880 are compared, several notable changes will be observed. While the total cotton product of the state has increased nearly threefold (2.7 to 1), the seaboard region has increased its product in nearly that average ratio (2.8 to 1), that of the long-leaf pine region has about doubled, and the oak uplands region has enlarged its product in the ratio of 4.5 to 1. If the subject be examined geographically, it will be found that in the latter region the cotton area has widened northward, taking into the zone of cotton culture an additional tier of counties, and toward the western part of the midland section and across the Piedmont as much as two tiers, making a breadth of fully 50 miles; so that a number of counties which in 1870 were not counted as cotton counties, their product being only a few score, or at most a few hundred bales, now produce as many thousand bales, as Granville, Stanley, Rowan, Iredell, Lincoln, Catawba, Oglethorpe, and Rutherford. This remarkable result is due, in large part, to the introduction and general use of commercial fertilizers, which not only increase the crop, but hasten its maturity from two to three weeks, and so bring into the cotton belt a strip of plateau country whose elevation of from 800 to 1,200 feet had placed it just beyond the climatic range of the cotton-plant. This region, which in 1870 produced but little more in aggregate of bales than the yield of its banner county in 1880 (and much less than that in 1860), now produces as much as the whole state did at the last two enumerations. That this change is in no respect due to the altered relations of labor is obvious from several considerations, but sufficiently from this: that the product in 1860 and in 1870 was not only the same in total amount, but was distributed among the three regions in about the same proportions.

Fertilizers.—The use of commercial fertilizers is almost universal in the cotton counties, and composts of stable manure, cotton-seed, muck, woods-mold, and marl are also largely used in the best farming sections (the eastern regions), the first two being also used in the oak uplands. As has been already stated, the use of commercial fertilizers has increased very rapidly; indeed, has revolutionized the whole cotton industry of the state in the past decade, and the end is not reached. It will be seen that the crop of the long-leaf pine region was doubled in that time, and that of the other regions increased in a still larger ratio, and this not only through the increased acreage, but also an enlarged product per acre. An unfortunate result of the enlarged use of these manures is the diminished use of the marls, which abound in the eastern regions, and are accessible to almost every neighborhood. These marls are found in the ravines and the banks of streams and in the farm ditches in most of the eastern counties. Their value has been thoroughly tested on a hundred farms, and is admitted by all intelligent farmers to be very great. They increase the yield two and three fold, and are the most durable in their effect of all manures. A few analyses will sufficiently show the reason of their utility.

Analyses of marls of North Carolina.

[Made by E. H. Bogardus, chemist to New Jersey survey, and G. B. Hanna, United States assayer.]

	GLAUCONITIC (CRETA- CROUS).			WHITE CHALK MARLS (EOCENE).				BLUE MARLS (MIOCENE).								
	Cape Fear river, Wilmington.	Neuse river, near Kinston.	Neuse river, 15 miles north of Kinston.	Wilmington.	Twenty-five miles north of Wiling- ton.	Neuse river.	Near New Berne.	Lumber river, Robe- son county.	Cape Fear river, near Wilmington.	Cape Fear river, 25 miles north of Wilmington.	Middle part of Samp- son county.	Near Kinston, Le- noir county.	Wilson county.	Near Weldon, Hall- fax county.	Tar river, Green- ville.	Meherrin river, Mur- freesboro', Hertford county.
Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Insoluble matter.....	95.17	99.00	100.00	100.00	103.60	101.89	100.00	100.00	100.24	100.10	100.00	100.51	99.10	100.00	99.95	101.69
Potash.....	51.50	76.03	68.01	3.54	7.27	4.88	4.56	6.97	37.24	26.35	38.23	55.28	24.70	63.47	40.66	53.83
Soda.....		0.51	0.62	1.28	1.06	1.87	Trace.	0.37	1.60	0.91	0.75	0.51	0.02	0.48	0.37	0.03
Lime.....	20.21	0.11		0.86	0.00	0.42	0.14	0.15	0.34	0.02	0.04	0.14	0.24	0.21	0.34	0.70
Magnesia.....		0.19	8.89	51.74	48.55	50.80	50.04	47.02	30.45	33.03	20.19	21.04	34.97	12.99	20.25	14.09
Peroxide of iron.....		0.80	1.20	0.50	1.89	0.67	1.72	1.03	1.68	0.50	0.58	0.23	2.26	2.87	0.37	0.41
Alumina.....	7.59	4.23	0.01	0.97	5.23	1.60	1.62	0.86	2.09	5.47	5.15	2.92	0.01	4.18	4.90	3.62
Phosphoric acid.....	Trace.	0.73	0.24	0.35	0.10	0.45	0.34	0.19	0.38	1.67	1.40	0.43	0.32	0.38	3.75	0.13
Sulphuric acid.....		1.83	4.21	0.49	0.20	0.33	0.45	0.41	1.10	0.28	1.57	1.06	1.08	0.61	2.02	2.82
Carbonic acid.....	15.87	6.00	5.76	40.61	30.35	40.60	40.55	38.15	25.16	24.89	21.41	16.40	29.06	12.68	11.72	10.23
Organic matter.....																
Water.....		0.46	0.26	0.16	0.45	0.27	0.58	4.25		6.89	1.68	1.60	0.44	2.18	6.48	9.37

These marls belong to three classes: the first three are greensand, or Cretaceous; the next four, Eocene-Tertiary; the others, Miocene-Tertiary. No. 1 represents the greensand marl of the Cape Fear River section; the sample is from the river bluff at Wilmington. No. 2 is from a stream near Kinston, and represents that of the Neuse River section. No. 3 is from a point about 15 miles farther north, near the upper limit of the Cretaceous. These marls are not much used, because they contain too small percentages of lime and too large proportions of sand for sandy soils, and especially because so large quantities are required (500 bushels and upward to the acre), but they are used with very good results on clay soils.

The Eocene or chalk marls are very rich in lime, being, in fact, generally but uncompacted limestones or comminuted shells. Their content of potash and phosphoric acid is often of considerable value.

No. 4 is from Wilmington, where marls of this description are abundant and near the surface. No. 6, from near Kinston, represents the Eocene marls of the Neuse river; they extend from Goldsboro' to New Berne, and underlie the whole country to the Cape Fear. These are valuable fertilizers, and are used by the better class of farmers with very great advantage.

But the blue marls are more widely distributed than the others, and more accessible, and are much more extensively used. There are few counties of the long-leaf pine and seaboard regions in which these marls are not found. Forty or fifty years ago their introduction under the teaching of Mr. Edmund Ruffin, of Virginia, revolutionized the agriculture of Edgecombe and the adjoining counties. The marl is used in the compost heap or alone, and is distributed in the furrow or broadcast.

These samples fairly represent the marls and their distribution, and were taken from open pits which had been extensively used, in all cases with marked and permanent benefit. The marvel is they are not universally used, a hundred tons for every one.

Muck and peat beds are found in vast quantities in every section of the east, and these are also used in the compost heap, as are also marsh mud and sea-weed and fish and fish-scrap on the sea-coast and sound.

Analyses of soils and subsoils of North Carolina, made under the auspices of the Tenth Census.

Number.	Name.	Locality.	County.	Depth taken.	Vegetation.	Insoluble matter.	Soluble silica.	Total insoluble resi- due.	Potash.	Soda.	Lime.	Magnesia.	Brown oxide of man- ganese.	Peroxide of iron.	Alumina.	Phosphoric acid.	Sulphuric acid.	Water and organic matter.	Total.	Hygrosopic moisture at 400°.	Temperature of ab- sorption, C.	Analyst.
	OAK UPLANDS (METAMORPHIC).			Inches.																		
1	Gray gravelly loam	Near Raleigh	Wake	5	{ Pine, black post, and white oaks, dogwood, and hickory.	{ 87.200 3.142 90.342 0.101 0.023 0.060 0.023 0.074								2.780	3.094 0.056 0.065	3.140	99.788	2.592	17.0	J. B. Durrett.		
2	Yellow subsoil	do	do	5-20																		
3	Dark-gray gravelly loam	do	do	6	{ Long-leaf pine, post, white, and black oaks, and hickory.	{ 80.340 0.940 81.280 0.089 0.019 0.082 0.083 0.050 11.040								11.040	3.154 0.039 0.030	4.569	100.495	3.573	16.0	C. Cory.		
4	Yellow-red clay subsoil	do	do	6-20																		
5	Light-gray gravelly loam	Spartanburgh, S.C.		6	{ Short-leaf pine, post, white, and black oaks, and hickory.	{ 77.860 1.790 79.650 0.092 0.041 0.036 0.070 0.056								5.646	7.538 0.082 0.058	6.167	99.436	4.685	21.8	C. Cory.		
6	Yellowish-brown subsoil	do	do	6-20																		
7	Gray gravelly loam	Charlotte	Mecklenburg	6	{ Black, white, red, and Spanish oaks, and hickory.	{ 43.740 5.870 49.610 0.214 0.087 0.003 0.212 0.010 11.700								3.427	5.096 0.206 0.118	7.251	99.913	4.952	21.1	J. B. Durrett.		
8	Red-brown clay loam subsoil	do	do	6-20																		
9	Gray gravelly clay loam	Near Concord	Cabarrus	7	{ White, black, and post oaks, and hickory.	{ 81.060 2.339 83.419 0.141 0.063 0.065 0.036 0.091								9.705	9.853 0.227 0.043	7.060	100.615	7.123	21.1	Do.		
10	Yellow subsoil	do	do	7-20																		
	LONG-LEAF PINE REGION.					{ 72.280 1.061 73.341 0.145 0.038 0.050 0.043 0.081								4.987	4.024 0.136 0.075	3.876	100.130	3.346	21.8	H. McCalley.		
11	Light-gray soil	Near Sparta	Edgecombe	3	{ Long-leaf pine, with small under- growth of oaks and dogwood.	{ 78.786 7.405 86.191 0.131 0.012 0.335 0.311 0.052								6.520	6.412 0.330 0.051	2.546	100.011	3.749	21.8	Do.		
12	Yellow subsoil	do	do																			
	LEVEL PINE WOODS.					{ 79.507 3.853 83.360 0.136 0.084 0.276 0.162 0.084																
13	Gray sandy loam	Penny Hill	Pitt.	11	{ Long-leaf pine, oaks, hickory, and dogwood.	{ 91.433 2.951 94.384 0.093 0.033 0.052 0.006 0.031								0.753	1.559 0.061 0.034	2.754	99.760	2.391	21.8	H. McCalley.		
14	Gray sandy loam subsoil	do	do																			
15	Gray sandy loam	5 miles north of Princeton.	Johnston	7	{ Long-leaf pine and wire-grass	{ 91.842 3.514 95.358 0.087 0.023 0.019 0.025 0.029								1.766	1.563 0.101 0.040	1.175	100.190	2.190	21.8	Do.		
16	Yellow subsoil	do	do	7-20																		
	UPLAND LEVEL PINE WOODS.					{ 77.735 4.016 81.751 0.204 0.109 0.177 0.073 0.091								4.786	7.393 0.143 0.154	5.760	100.646	6.710	20.5	J. B. Durrett.		
17	Gray sandy loam	3 miles from Wel- don.	Halifax		{ Short-leaf pine, oaks, little hick- ory, and dogwood.	{ 77.520 5.915 83.455 0.226 0.090 0.125 0.042 0.090								3.815	8.603 0.126 0.178	3.697	100.427	5.847	19.4	Do.		
18	Yellow subsoil	do	do																			
19	Gray sandy loam	Near Wilson C. H.	Wilson		{ Long-leaf pine and wire-grass	{ 94.810 1.283 96.093 0.085 0.037 0.045 0.030 0.101								0.368	1.314 0.071 0.043	2.406	100.598	1.876	25.5	Do.		
20	Subsoil of "Lousin swamp"	7 miles north of Kinston.	Lenoir	15-20																		
					{ Pine, sweet and black gum, and willow oak.	{ 93.276 3.567 96.843 0.060 0.012 0.037 0.018 0.035								0.564	1.638 0.049 0.005	0.634	99.895	0.586	25.5	H. McCalley.		
						{ 91.500 1.580 93.080 0.135 0.047 0.123 0.048 0.111								1.580	2.900 0.117 0.040	1.678	99.859	2.344	29.0	J. B. Durrett.		
						{ 72.055 8.879 81.937 0.447 0.253 0.065 0.161 0.116								5.244	8.583 0.160 0.013	3.347	100.329	5.953	26.0	H. McCalley.		
						{ 93.343 1.621 94.964 0.049 0.022 0.023 0.032 0.006								1.056	1.624 0.067 0.037	2.048	99.950	1.552	16.0	R. H. Longbridge.		
						{ 91.818 2.552 94.370 0.051 0.050 0.080 0.051 0.009								0.434	3.740 0.087 0.031	1.690	100.643	6.146	16.0	Do.		

ANALYSIS OF SOILS.

Analyses of soils made by Messrs. C. H. Bogardus and G. B. Hanna for the geological survey of North Carolina.

No.	Soil.	Locality.	County.	Depth taken.	Vegetation.	Insoluble resl.	Soluble silicn.	Total insoluble	Potash.	Soda.	Lime.	Magnesia.	Peroxide of iron.	Alumina.	Phosphoric acid.	Sulphuric acid.	Organic matter.	Water.	Total
				Inches.															
21	CYPRESS AND GUM SWAMPS. Dark, mucky soils.....	Mattamuskeet lake.....	Hyde		Gum, cypress, ash, poplar.....	43.00	0.03	43.03	0.16	0.18	0.12	0.12	6.40	0.30	0.30	0.04	47.10	-----	97.45
22	do.....	do.....	do	•	do.....	34.60	0.40	35.00	0.18	0.10	0.27	0.27	3.70	0.12	0.12	0.22	38.80	12.30	95.84
23	do.....	Blount's creek.....	Beaufort	12	do.....	59.24	1.86	61.10	0.79	0.69	1.62	1.08	13.78	0.06	0.06	0.22	20.80	-----	100.08
24	do.....	Bear swamp.....	Pamlico		do.....	71.30	5.90	77.20	0.08	-----	0.12	0.13	1.39	0.06	0.06	0.21	17.50	2.30	100.01
25	Cypress and gum swamp soil.....	White Oak swamp.....	Jones		do.....	64.74	2.60	68.34	0.05	0.02	0.10	0.29	0.30	0.06	0.06	0.21	22.80	4.29	99.70
26	Black mucky soil.....	Big swamp.....	Bladen		do.....	-----	52.20	0.60	-----	-----	1.16	0.55	6.09	0.34	0.34	0.65	38.41	-----	100.00
27	do.....	Eagle island.....	Brunswick		Gum, cypress, cane.....	-----	32.36	0.96	0.26	0.56	-----	-----	4.92	0.45	0.45	1.30	59.19	-----	100.00
28	Black mucky soil, cultivated.....	do.....	do		-----	-----	62.22	0.46	-----	-----	1.54	0.23	20.35	Tr.	Tr.	0.23	12.43	-----	97.46
	SEMI-SWAMPS, AND OAK, BEECH, AND PINE FLATS.																		
29	Dark-gray soil.....	Bear swamp.....	Pamlico		Gum, poplar, ash, maple.....	62.64	3.88	66.50	0.90	0.68	0.68	0.58	10.30	Tr.	Tr.	0.43	13.60	-----	99.67
30	Dark-gray and gravelly loam.....	Stonewall.....	do		Beech, gum, maple, oak.....	69.28	12.05	81.33	0.24	-----	0.29	0.09	1.46	0.04	0.04	0.03	9.60	2.10	100.08
31	Light-gray soil.....	Open Ground prairie.....	Carteret		Oak, gum, maple, pine, palmetto.....	30.84	3.70	84.54	0.07	0.02	0.44	0.22	1.18	0.08	0.08	0.06	7.70	2.50	99.50
32	Light-gray loam.....	Near Morehead city.....	do		do.....	69.07	6.80	75.87	0.07	-----	0.20	0.07	1.12	0.13	0.13	0.08	13.00	4.80	99.59
33	Gray gravelly soil.....	Whiteville.....	Columbus	12	Oak, maple, ash, gum, poplar.....	85.15	1.57	86.72	Tr.	0.45	1.67	0.38	5.12	0.02	0.02	0.03	4.41	1.32	100.12
34	Dark-gray soil.....	Dover pocoson.....	Craven		Pine, and wire-grass.....	-----	70.50	-----	-----	-----	0.01	-----	0.70	-----	-----	-----	25.20	2.70	99.17
35	Savanna soil.....	Pungo river.....	Beaufort		-----	86.89	4.05	90.94	0.02	0.17	0.20	0.11	1.16	0.11	0.11	-----	4.55	0.55	100.58
36	do.....	25 miles north of Wilmington. ton.	Pender		-----	-----	92.66	0.86	0.86	0.84	0.22	0.40	1.31	0.12	0.12	0.13	4.88	-----	100.92
	PINE FLATS.																		
37	Light-gray soil.....	Near Selma.....	Johnston	12	Long-leaf pine, oaks, gums.....	90.13	3.67	93.80	0.13	-----	0.45	0.45	0.70	0.02	0.02	Tr.	2.84	-----	99.47

PART II.

AGRICULTURAL DESCRIPTIONS
OF THE
COUNTIES OF NORTH CAROLINA.

AGRICULTURAL DESCRIPTIONS

OF THE

COUNTIES OF NORTH CAROLINA.

The counties are here grouped under the heads of the several agricultural regions previously described to which each predominantly belongs, or, in some cases, under that to which it is popularly assigned. Each county is described as a whole.

The regional groups of counties are placed in the same order as that in which the regional descriptions themselves are given. The statements of areas of woodland, etc., refer to the original state of things, irrespective of tilled or otherwise improved lands.

Appended to the description of each county from which a report or reports have been received is an abstract of the main points of such reports, so far as they refer to natural features, production, and communication. Those portions of the reports referring to agricultural and commercial practice are placed in a separate division (Part III) following that of county descriptions. In making the abstracts of reports it has in most cases been necessary to change somewhat the language of the reporter, while preserving the sense.

SEABOARD REGION.

(Embraces the counties of Currituck, Camden, Pasquotank, Perquimans, Chowan, Dare, Tyrrell, Washington, Hyde, Beaufort, Pamlico, Craven, Carteret, Jones, Onslow, Pender, New Hanover, Brunswick, Columbus.)

CURRITUCK.

Population : 6,476.—White, 4,495; colored, 1,981.

Area : 282 square miles.—Woodland, 41,119 acres.

Tilled lands : 40,455 acres.—Area planted in cotton, 316 acres; in corn, 23,310 acres; in wheat, 101 acres; in oats, 267 acres.

Cotton production : 139 bales; average cotton product per acre, 0.44 bale, 627 pounds seed-cotton, or 209 pounds cotton lint.

Currituck county is bounded northward by Virginia, eastward by the Atlantic ocean, and southward mainly by Albemarle sound, and is traversed north and south by Currituck sound, which occupies about one-third of its territory. Between this sound and the Atlantic ocean lies a narrow strip of sandy soil, which in its origin is a sand-dune of the breadth of from 1 to 3 miles, rising in some of its higher hillocks to nearly one hundred feet, covered generally with a small growth of pine, oak, hickory, dogwood, etc. The body of the county, particularly the northern section, is quite level, and has a growth of oaks, hickory, and short-leaf pine and a clay loam soil, but becomes swampy near the streams. There is a narrow belt of oak and pine lands also in the middle section. The narrow southern promontory which projects into Albemarle sound is for the most part sandy, and except along the margin of the sounds, where it is more or less swampy, has a growth of long-leaf pine. With the exception of the dune hills, nearly the whole county lies below the level of 10 feet above tide.

The soils of this county are much better adapted to corn and rice than to cotton. The stalk of the latter grows luxuriantly, but does not fruit well. Fishing is also naturally a leading industry; and the county has great facilities for truck farming, which is rapidly acquiring importance. Of the county area, 22.41 per cent. is tilled land, of which 0.78 per cent. is cultivated in cotton.

The most abundant facilities exist for shipping by the sounds and canals and by rail.

CAMDEN.

Population: 6,274.—White, 3,791; colored, 2,483.

Area: 214 square miles.—Woodland, 65,729 acres.

Tilled lands: 35,870 acres.—Area planted in cotton, 2,670 acres; in corn, 23,663 acres; in wheat, 461 acres; in oats, 1,008 acres.

Cotton production: 823 bales; average cotton product per acre, 0.31 bale, 438 pounds seed-cotton, or 146 pounds cotton lint.

Camden county is a long narrow strip of territory parallel to Currituck. Northwestward it reaches the Dismal swamp and southward Albemarle sound, and lies between two of its projecting arms, Pasquotank river and North river. The northern and larger portion of this county belongs to the description of semi-swamp or oak flats, and along the main rivers, and frequently for a mile or two from their margins, are gum and cypress swamps. At a distance from the streams these lands, as in the preceding county, are characterized by a heavy growth of oak, hickory, short-leaf pine, etc. The middle portion of the southern end of this county, along the divide between its two bounding water-courses, has a narrow zone of sandy loam soil with long-leaf pine forests. The main crops are corn and cotton, with some small grains; but fishing and truck-farming are also among the common and profitable industries; and several thousand bushels of flaxseed are annually exported. Of the county area, 26.20 per cent. is tilled land, of which 7.44 per cent. is cultivated in cotton.

Shipments are made to Norfolk by the Dismal Swamp canal and by rail.

PASQUOTANK.

Population: 10,369.—White, 4,855; colored, 5,514.

Area: 232 square miles.—Woodland, 44,345 acres.

Tilled lands: 51,400 acres.—Area planted in cotton, 4,004 acres; in corn, 28,525 acres; in wheat, 3,300 acres; in oats, 1,930 acres.

Cotton production: 1,181 bales; average cotton product per acre, 0.29 bale, 420 pounds seed-cotton, or 140 pounds cotton lint.

Pasquotank is a long, narrow strip of territory parallel to Camden county, and is of similar topographical situation and agricultural features. It is bordered eastward and westward by two bay-like arms of the sound, Pasquotank river and Little river, both of which take their rise in the Great Dismal swamp. The upper and middle portions, therefore, belong to the general description of swampy land and semi-swamps. Near the streams there are generally strips of swamp proper, with gum, cypress, and juniper forests, but farther from them are semi-swamps and oak and pine flats, with oak, hickory, short-leaf pine, ash, maple, black gum, and holly. These lands are of great fertility. The southern end of the peninsula on the sound is, as usual, sandy, piny woods. The industries of the county are the same as those of Camden. More cotton is produced, and lumbering still constitutes an item of consequence, as also in all these Albemarle counties. Truck farming is also assuming large proportions, and the raising of early potatoes for the northern market has recently become one of the most profitable industries. Of the county area, 34.62 per cent. is tilled land, of which 7.79 per cent. is cultivated in cotton. All these Albemarle counties have unlimited facilities of transportation through their numerous bays, rivers, and sounds, which are connected with Norfolk harbor through the Dismal swamp and the Currituck canals, and also by railway.

ABSTRACT OF THE REPORT OF C. W. HALLOWELL, OF ELIZABETH CITY.

There is a considerable variety of soil and a limited area of good cotton lands in scattered patches of from 20 to 300 acres, the lower lands being generally dark alluvial and wet, and not at all adapted to cotton. The higher lands, being drier, are better adapted to cotton. Only one year in several may be said to be a good cotton year. The early spring is apt to be cold and wet, which necessitates late planting; again, some of the moister soils will not mature the crops before the coming of early frosts. For these causes the "sure" cotton lands of this region are of very limited area. The soil may be divided, first, into the gray loam, with stiff foundation, and secondly into sandy ridges.

The chief soil is the *gray loam*. The proportion of the lands of the region of this kind does not exceed one-twentieth of the acreage, and its natural timber is beech, ash, white oak, poplar, sweet gum, and hickory. The average depth is 6 inches, when its color changes into that of the subsoil, which is a yellow sand mixed with clay. Near the water-courses the subsoil is yellow and sometimes bluish clay, and that of the dark lands is hard and crumbly. The chief crops are corn, wheat, cotton, oats, pease, potatoes, and flaxseed, but the soil is apparently best adapted to corn and flax. Three feet is the average height of the cotton-plant, which inclines to run to weed in wet summers. Topping has been tried, but without good effect. Fresh land produces in favorable seasons 1,000 pounds of seed-cotton per acre, and 1,425 pounds are needed for a 475-pound bale, which, when clean, rates in the market as middling and low middling. After seven years' cultivation the land produces 600 pounds of seed-cotton per acre. Crab- and water-grass are troublesome. The proportion of land originally cultivated now turned out is very small.

Cotton shipments are made, from October to January, by steamboats and sail vessels to Baltimore and Norfolk. Rates of freight per bale are 75 cents to Norfolk and \$1 25 to Baltimore.

PERQUIMANS.

Population: 9,466.—White, 4,795; colored, 4,671.

Area: 245 square miles.—Woodland, 61,482 acres.

Tilled lands: 53,544 acres.—Area planted in cotton, 7,025 acres; in corn, 21,910 acres; in wheat, 2,957 acres; in oats, 1,222 acres.

Cotton production: 2,778 bales; average cotton product per acre, 0.40 bale, 564 pounds seed-cotton, or 188 pounds cotton lint.

Perquimans county is in every respect twin to the preceding, and northward it extends into the Great Dismal swamp. A considerable percentage of the surface of Perquimans is occupied by what is commonly called swamp land, though for the most part it is drainable and cultivable. These swamp lands, which are better described as semi-swamps and oak and pine flats, are a repetition of those before described, and have a similar soil, which varies from a fine gray loam to a dark mucky soil of high fertility. Along the Perquimans river, which is an arm of Albemarle sound, lie in a southeasterly direction narrow zones of cypress swamps, beyond which, northward and southward, are narrow tracts of sandy soil, with forests mainly of long-leaf pine. These long-leaf pine tracts, which occupy the divides between the streams, project in the form of promontories into the margin of the sound. Of the county area, 34.15 per cent. is tilled land, of which 13.12 per cent. is cultivated in cotton. Shipments are by sound and canal steamers and by rail to Norfolk.

ABSTRACT OF THE REPORT OF WILLIAM NIXON, OF WINFALL.

This county, divided nearly in half by the Perquimans river, has a sound front of fifteen miles, which is not subject to overflow, is level, and has different soils, principally clay, sandy, and black. Cotton is slow in getting off in the spring, and is liable to injury (shedding) from heavy rains in August.

About one-half of the county is what is designated *stiff land*, which extends 20 miles north and 15 miles east from the sound. The natural timber growth is sweet gum, oak, pine, poplar, ash, beech, hickory, holly, and dogwood. The land is a gray clay loam, about 6 inches deep; the subsoil is heavier than the surface soil, and is mixed with some very fine sand. Corn, cotton, wheat, oats, and potatoes are the chief crops. The soil is best adapted to corn and wheat, but one-fourth of the improved land is occupied by cotton. The plant is most productive when 3 feet high; but it grows from 2 to 5 feet in height, and is apt to run to weed in hot, wet weather. Fourteen hundred and twenty-five pounds of seed-cotton are required to make a 475-pound bale, rating in the market as middling. About 5 per cent. of the land originally cultivated now lies turned out, but does well when again cultivated.

The *sandy soil*, occupying about three-tenths of the land in this region, and extending from 8 to 10 miles north by 7 miles across the county, is timbered with pine, poplar, oak, and hickory. The soil is whitish yellow to the depth of 8 inches, when it changes into that of the subsoil, which is heavier than the surface soil, and is a clay mixed with sand. It is early, warm, and well drained, and is best adapted to corn, cotton, and sweet potatoes.

The *black soil* extends 10 miles north by from 2 to 4 miles east and west, and occupies about two-tenths of the lands. It is a blackish loam to the depth of 1 foot. The subsoil is clay and sand, underlaid with blue mud at the depth of 10 feet, and is best adapted to corn.

Cotton shipments are made, from November 1 to January 1, by steamboat to Norfolk and Baltimore. Rates of freight per bale are: to Norfolk, \$1; to Baltimore, \$1 50.

CHOWAN.

Population: 7,900.—White, 3,633; colored, 4,267.

Area: 150 square miles.—Woodland, 44,446 acres.

Tilled lands: 35,234 acres.—Area planted in cotton, 6,047 acres; in corn, 13,877 acres; in wheat, 622 acres; in oats, 791 acres.

Cotton production: 2,223 bales; average cotton product per acre, 0.37 bale, 525 pounds seed-cotton, or 175 pounds cotton lint.

Chowan county lies in the angle of the Chowan river and Albemarle sound. Northward it consists of sandy, upland pine woods, except narrow tracts along the river and some of its tributaries, where cypress swamps of considerable extent are found; and there are also large areas of oak flats. The southern portion of the county, lying near the sound and south of the Yeopim river, is characterized by a gray clay-loam soil and a mixed oak and pine forest growth, and is for the most part very productive. Bear swamp, which crosses the county in a northeast and southwest direction, is more properly a semi-swamp from 3 to 5 miles wide, very level, with a gray silty soil, and the characteristic growth of such lands comprises short-leaf pine, oaks, maple, ash, dogwood, occasionally cypress and gum, and frequently a large admixture of holly, which here attains the size of oaks and furnishes a superior cabinet wood. The agriculture of the county, as well as its other industries, is quite like that of Gates. Its fisheries are among the largest and most profitable in the country. Of the county area, 36.72 per cent. is tilled land, of which 17.16 per cent. is cultivated in cotton. Being surrounded on three sides by navigable waters and crossed by a line of railway, the county has abundant means of transportation.

ABSTRACT OF THE REPORT OF L. W. PARKER, OF SMALL'S CROSS-ROADS.

About one-half of the lands in this region is what is designated as "*Albemarle sound bank or level*", about one-half being cultivated in cotton. This region is twenty miles in length and ten miles wide. Its natural timber is oak, gum, maple, and pine. The soil is black in the bottoms and a white sand on the hills, the average depth in the former being 2 feet. The subsoil is heavier than the surface soil, being in the bottoms a blue mud of a putty-like nature and on the hills yellow and sandy. Cotton, corn, potatoes, pease, and peanuts are the chief crops; but the soil seems best adapted to cotton, and 50 per cent. of the improved land is given to this crop, which is most productive when 3 feet high, and is inclined to run to weed in wet seasons when planted too deep, the remedy for which is manuring and good and early cultivation. In fresh land the seed-cotton product is 1,500 pounds per acre, of which 1,425 pounds make a 475-pound bale of lint, rating as middling staple. After five years' cultivation the product is 750 pounds per acre, and 1,540 pounds are needed to make a bale, the lint rating as low to middling. The carrot and hog-weed are most troublesome. About 25 per cent. of land once in cultivation now lies turned out, and when again taken in it produces finely for two or three years. It washes and gullies on the slopes, but the damage is not serious; but in most cases the valleys are improved by these washings of the uplands.

The *sandy ridge* occupies about one-third of the lands in this section, extends 20 miles in length by 6 miles in width, and is timbered with yellow pine. The soil is a white sand to the depth of 8 inches, with a subsoil of yellow sand heavier than the surface soil. It is early, warm, well-drained, and easy to till in dry seasons, and is apparently best adapted to wheat, pease, or cotton, and one-half is occupied by the latter crop. The cotton-plant attains the height of from 3 to 4 feet, but is most productive when 3 feet high. It is inclined to run to weed in wet seasons, and topping is practiced to stop this tendency. In fresh lands 1,425 pounds of seed-cotton is necessary for a 475-pound bale, which rates in the market as middling. After five years' cultivation the product ranges from 500 to 600 pounds per acre, and rates as low middling. Crab-grass is the most troublesome weed. About 10 per cent. of the land once in cultivation now lies turned out.

The *black swamps or bottoms* extend 10 miles square, and occupy one-fourth of the land in this region. The soil is a prairie, putty-like loam, black in color to the depth of 3 feet, when it changes into that of the subsoil, a blue mud, intermixed with some gravel. It is late, cold, ill-drained, and best adapted to corn and oats, but one-tenth of the improved land is occupied by cotton. The latter crop is most productive at the height of 3 feet, but grows from 4 to 8 feet high, and is inclined to run to weed under all circumstances. Fertilizing will favor bolling. The staple rates as low middling. The cost of production is about 6 cents per pound.

Cotton shipments are made as soon as ginned to Norfolk or Baltimore. Rates of freight per bale are: to Norfolk, \$1; to Baltimore, \$1 25.

DARE.

Population: 3,243.—White, 2,875; colored, 368.

Area: 382 square miles.—Woodland, 19,996 acres.

Tilled lands: 2,094 acres.—Area planted in cotton, 16 acres; in corn, 956 acres; in wheat, 25 acres; in oats, 17 acres.

Cotton production: 8 bales; average cotton product per acre, 0.50 bale, 714 pounds seed-cotton, or 238 pounds cotton lint.

The surface of Dare county is mainly water, the land, made up of a succession of long, narrow islands and peninsulas, being interpenetrated throughout by great bays, sounds, and navigable bayous. The county is bounded eastward by the Atlantic ocean, westward by Alligator river, and southward by Pamlico sound. The larger portion, on the mainland, is a swamp, which lies but a few feet above tide-level. Around the margins of this portion, next the sound, are narrow tracts of a few miles, in places, of drainable, cultivable land belonging to the general description of oak flats, having a gray-loam soil of a close texture. It is also fringed by considerable bodies of marsh land next the sound, from which large crops of cranberries are gathered. Roanoke island, a part of this county, lies within the upper portion of Pamlico sound, and is a narrow tract, twelve miles in length and from two to three miles in width. The upper portion is for the most part sandy, with a short-leaf pine growth, intermixed with oaks, and the southern half is mainly swamp and marsh. The easternmost part of the county, like the corresponding portion of Currituck, is a narrow fringe of sand reef, properly a dune, which, as in the former case, was originally covered with a forest of short-leaf pine, oaks, hickories, dogwood, etc., with abundance of grape-vines. These have for the most part disappeared, leaving a tract of sand waves, which are moving, under the impact of the trade winds, constantly toward the southwest into the sound, and sometimes rise to a height of more than 100 feet. There is very little tillable land in the county. Its chief industry is, of course, fishing. Of the county area, only 0.86 per cent. is tilled land, of which 7.63 per cent. is cultivated in cotton.

TYRRELL.

Population: 4,545.—White, 3,110; colored, 1,435.

Area: 376 square miles.—Woodland, 57,282 acres.

Tilled lands: 19,225 acres.—Area planted in cotton, 3,481 acres; in corn, 8,300 acres; in wheat, 261 acres; in oats, 781 acres.

Cotton production: 1,123 bales; average cotton product per acre, 0.32 bale, 459 pounds seed-cotton, or 153 pounds cotton lint.

The description of Tyrrell county may be given by simply repeating that of Washington, except that the great intersound swamp extends over a larger part of the county. Its northern third, lying on Albemarle sound, resembles in all its features the corresponding portion of Washington. No part of it rises 20 feet above sea-level. It is bounded on the east by the great projection from Albemarle sound known as Alligator river, which has a depth nearly equal to that of the sound and a breadth of from 3 to 5 miles. A portion of the rich border land of lake Phelps lies within this county. In the southeastern corner, along Alligator river and its tributaries, and on the western side, these lands are semi-swamps and oak flats, and have a gray silt and clay loam soil. Of the county area, 7.98 per cent. is tilled land, of which 18.11 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF EPH. LEIGH, OF FORT LANDING.

The uplands, or tillable lands of our creeks and rivers, are skirted by gum, cypress, and juniper swamps. The black or deep-soil lands are rather of a cold nature; hence cotton starts slowly in the early season, and when it does start it grows too rapidly and late, and consequently is cut off by frost. In our lighter lands the soil is warmer and the plant matures early, and so we have but very little stained cotton.

The chief soil is a *light, fine sandy loam* of a whitish-gray color, with a subsoil of tough yellow clay, very stiff, which in places looks nearly blue. Its natural timber is gum, poplar, ash, and pine. This soil is easy to till in good seasons, and is well-drained, early, and warm. Corn, cotton, wheat, oats, rice, and potatoes are the leading crops. The proportion of cotton planted is about one-third, and usually attains the height of from 2½ to 5 feet, about 3 feet being the most productive. Too much rain makes it run to weed, and topping will help to make it boll; 1,425 pounds is needed to make a bale. The most troublesome weeds are crab-grass and morning-glory. We are not troubled with gullies on the slopes.

The *black soil* forms about one-third of the lands, and is timbered with gum, poplar, cypress, ash, and oak. This soil is best adapted to rice, corn, pease, and potatoes. The proportion of cotton planted is probably one-tenth, 1,660 pounds of seed-cotton being necessary for a 475-pound bale.

Cotton shipments are made, from November to the middle of January, by steamboats and sailing vessels to Norfolk and Baltimore. Rates of freight are from 75 cents to \$1.25 per bale.

WASHINGTON.

Population: 8,928.—White, 4,554; colored, 4,374.

Area: 382 square miles.—Woodland, 75,816 acres.

Tilled lands: 30,711 acres.—Area planted in cotton, 8,117 acres; in corn, 15,824 acres; in wheat, 647 acres; in oats, 1,065 acres.

Cotton production: 3,524 bales; average cotton product per acre, 0.43 bale, 618 pounds seed-cotton, or 206 pounds cotton lint.

Washington county lies on the southern shore of Albemarle sound and Roanoke river, and extends southward into the great intersound, or Alligator swamp. Only about one-half its territory, next to Albemarle sound, has been brought into cultivation to any extent, the southern half remaining in its original condition. The cultivable portion consists mainly of oak flats, having a close gray clay loam soil and a growth of oak, hickory, beech, maple, and short-leaf pine, with flattish ridges here and there which have an intermixture of long- and short-leaf pine and sandy loam soils. The former are generally quite fertile. The southern portion of the county is swampy, and is characterized by the presence of two considerable lakes, Phelps and Pungo, which occupy the highest portions of the swamp, and from which many of the streams of the county take their rise. Around the margins of these lakes are narrow belts or ridges of swampy, mucky land, which were originally covered by heavy forests of gum, ash, maple, cypress, poplar, etc. The soils are of great depth and indefinite fertility. Much of the swamp land of this portion of the county is peaty and worthless, except for timber. The southwestern section consists partly of semi-swamps, with gray fertile loams, and partly, in the "Longacre" country, of *pocosons*, with a small growth of pine and scrub oaks, very flat, with an ashen soil of close texture, siliceous, but as impervious as clay. Of the county area, 12.56 per cent. is tilled land, of which 26.43 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF J. P. NEWBERRY, OF PLYMOUTH.

Cotton in the lowlands is invariably late, and is apt to grow too much weed. The high and sandy soil is preferred. The soils cultivated in cotton are: first, the light and sandy; second, the dark clay, the chief soil, the *light and sandy*, occupying five-eighths of the lands in this region. Its natural timber is cypress, pine, gum, ash, and poplar. The average thickness of the upland soil is 3 inches; of the lowland, 18 inches. The subsoil is heavier, and is described as a clay and gravel mixed, underlaid by sand and gravel at 8 feet, which is rather difficult of tillage in wet seasons. Cotton, corn, and potatoes form the principal crops. The soil is best adapted to cotton on the upland and corn on the lowland. The proportion of cotton planted is one-half, which is most productive at the height of 2½ feet. On rich soils in wet seasons it is inclined to run to weed, but topping in July and August help to prevent it. Fresh land produces from 1,000 to 1,200 pounds of seed-cotton per acre, 1,425 pounds being needed for a 475-pound bale, which, when clean, rates in the market as good middling. After five years' cultivation the yield is from 500 to 600 pounds per acre, and 1,425 pounds is then needed to make a bale, but it does not rate as well in the market. Crab-grass is the most troublesome weed. The slopes are but little subject to gullies.

Cotton shipments are made in November and December by steamboat to Norfolk and Baltimore. Rates per bale are \$1 25 and \$1 40.

HYDE.

Population: 7,765.—White, 4,424; colored, 3,341.

Area: 557 square miles.—Woodland, 41,247 acres.

Tilled lands: 32,167 acres.—Area planted in cotton, 2,513 acres; in corn, 21,632 acres; in wheat, 1,079 acres; in oats, 1,354 acres.

Cotton production: 718 bales; average cotton product per acre, 0.29 bale, 408 pounds seed-cotton, or 136 pounds cotton lint.

Hyde county is enveloped by sounds and great bay-like rivers, and its middle portion is occupied by a large lake, Mattamuskeet, 20 miles in length and 6 miles wide, with two other lakes in its northern portion. Two-thirds of its land-surface is occupied by the great Alligator swamp. A narrow fringe of from 1 to 2 miles' width around the central lake is the highest portion of the county, and is from 6 to 10 feet above tide. It was originally covered with a heavy swamp growth of cypress, gum (tupelo), maple, ash, etc. These lands have been cultivated for a century, and still produce 50 bushels of corn to the acre without manure or rotation. This ridge slopes off in every direction from the lake—eastward into a tract of oak flats, which extends to the sound. The southwestern portion of the county within the projecting arms of Pungo river and other bays from Pamlico sound may also be described as oak flats, with a soil which, in general terms, is a gray silty loam—an admirable wheat soil. The northern portion of this county, throughout its whole extent from east to west, is a low-lying savanna or peaty cypress and juniper swamp, like the Great Dismal, called Alligator swamp. Of the county area, 9.02 per cent. is tilled land, of which 7.81 per cent. is cultivated in cotton. The productions of this county are chiefly corn and wheat, to which has been recently added rice. Lumbering and fishing complete the list of its industries.

BEAUFORT.

Population: 17,474.—White, 10,022; colored, 7,452.

Area: 620 square miles.—Woodland, 224,330 acres.

Tilled lands: 43,625 acres.—Area planted in cotton, 11,785 acres; in corn, 20,225 acres; in wheat, 374 acres; in oats, 1,395 acres.

Cotton production: 6,021 bales; average cotton product per acre, 0.51 bale, 729 pounds seed-cotton, or 243 pounds cotton lint.

Beaufort county lies south of Washington county on both sides of the Pamlico river, which in this part of its course is an arm of the sound of the same name, from 2 to 6 miles wide, and throws off several wide projections or bays into the county on both sides. It is bounded on the east by Pungo river, another broad arm of Pamlico sound, whose waters also penetrate the county in numerous wide navigable bayous. A considerable proportion of the county is occupied by swamp lands. In the northern section, and across its whole breadth, lies the western extremity of the great intersound swamp, which attains its greatest elevation here of 40 feet above tide. In this culminating swell between the Roanoke and Pamlico rivers rise numerous tributaries of these rivers and of the sounds. The central portion of this part of the swamp belongs to that class of soils described as "pocoson", and is of very low fertility. Along the courses of the streams as they flow out from this swell are considerable marginal tracts of semi-swamp and oak flats, which are very productive. There are also belts of cypress swamp near Pamlico

river and the other streams on both sides, and south of the swamp, in the middle as well as along the western edge of the county, the land is mostly a level piny woods with a light sandy soil. In the eastern portion of the county, and on both sides of the Pamlico river, both along the banks of this river and of the before-mentioned projections, are large tracts of oak flats and semi-swamp, which are among the most productive soils of the region. Near the mouth of Pungo river occurs one of the largest prairies or natural meadows, *savannas*, in the state, embracing an area of 1,200 or 1,500 acres. It is treeless and fringed by short-leaf pine and oak forests, and has a fine, close, gray sandy soil, as impervious as clay. Its subsoil is of the same character, but is more clayey, and is of a slightly yellowish color. Marl is found in various parts of the county, but is little used. Of the county area, 10.99 per cent. is tilled land, of which 27.01 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF R. W. WHARTON, OF WASHINGTON.

Sandy loams and clay soils are in about equal proportions, and near the rivers are thin sandy loams and clays. All are good for cotton, but loams are preferred. On heavy black bottom lands, as also on heavy clay upland, cotton is liable to be prematurely frost-killed.

The *sandy loam* is the chief soil, and occupies one-half of the lands in this region. Its natural timber on the uplands is pine, intermixed with oak; on the bottoms the growth is gum, cypress, ash, and poplar. The average thickness of the soil is 2 feet on the bottoms and 1 foot on the uplands. The subsoil is heavier, and is usually yellow or grayish under the loam or clay soil and a coarse yellow sand under the sandy soil. Cotton, corn, oats, wheat, sweet and Irish potatoes, peanuts, and field pease are the chief crops. The soil is well adapted to all the above crops except wheat, which requires heavy manuring. The proportion of land planted in cotton is one-third, which is most productive when 3½ feet high. It inclines to run to weed on rich lands if the seasons are very warm and wet, for which early planting and the use of phosphatic manures are beneficial. Fresh land produces from 900 to 1,000 pounds of seed-cotton per acre, 1,425 pounds ordinarily making a 475-pound bale, which, when clean, rates in the market as low middling and middling; but much depends on ginning and handling. After six years' cultivation the land will produce 600 pounds per acre if proper rotation is observed, otherwise from 300 to 400 pounds, from 1,485 to 1,540 pounds being needed to make a bale, which rates two grades lower than staple from fresh land. Crab-grass and fennel are the most troublesome weeds. One-twentieth of this land now lies turned out, but when again taken in it produces for two or three years as well as original soil. The soil readily washes or gullies on the slopes, but no great damage is done, and efforts have been made, with good success, to check it by horizontalizing.

Shipments are made, from the 20th of September to the 1st of February, by steamers to Norfolk, Baltimore, Philadelphia, and New York. Rates of freight are: to Norfolk, \$1; to New York, \$2 per bale.

PAMLICO.

Population: 6,323.—White, 4,207; colored, 2,116.

Area: 470 square miles.—Woodland, 86,574 acres.

Tilled lands: 16,989 acres.—Area planted in cotton, 4,585 acres; in corn, 6,381 acres; in wheat, 285 acres; in oats, 378 acres.

Cotton production: 2,226 bales; average cotton product per acre, 0.49 bale, 693 pounds seed-cotton, or 231 pounds cotton lint.

Pamlico county is bounded on the east by Pamlico sound, and is enveloped by two of its great arms, Pamlico and Neuse rivers. Another of these arms, Bay river, with its numerous bayous, penetrates the central portion of the county, and nearly its whole border is deeply indented by smaller projections from the sound. A large part of the county consists of swamp lands with extensive oak and beech flats. These soils are very rich. Cotton is a leading crop in this county. There is a narrow belt of sandy, piny woods crossing the county diagonally from the southeastern angle at Wilkinson's point to Durham's creek in the northwestern corner. Of the county area, only 5.65 per cent. is tilled land, of which 25.20 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF J. S. LANE, OF STONEWALL.

All our lands are low and mostly bottoms. The chief soil is the *stiff or clay land*, which forms one-third of the lands, and extends at intervals over the whole county. Its natural timber is pine, cypress, juniper, cedar, poplar, maple, ash, oak, holly, and black and sweet gum. The soil is grayish in color to the depth of from 6 to 12 inches. The subsoil is considerably more compact than the surface soil, and is impervious to water. We have surface drains on all our stiff lands. The chief crops are cotton, corn, rice, sweet and Irish potatoes, wheat, and oats, and the soil is well adapted to all. Cotton occupies about two-fifths of the cleared land and usually attains a height of from 3 to 5 feet, but is most productive at 3 or 4 feet; it inclines to run to weed when we have morning rains about fruiting time, which causes the fruit to drop and the stalk to continue to grow. Fresh land produces from 1,500 to 2,000 pounds of seed-cotton per acre, and 1,485 pounds will make a 475-pound bale, which rates in the market as good ordinary to low middling. After eight years' cultivation the yield is 1,000 pounds, and 1,485 pounds are needed to make a bale, the grade being about the same as that from fresh land. The most troublesome weeds are rag-weed, dog-fennel, and Spanish needle. No land now lies turned out, and it is not subject to wash, as our land is level.

About one-half of the lands in this region are the *black alluvial soils*, which extend throughout a large portion of the adjoining counties, and are timbered with oak, ash, pine, poplar, beech, maple, holly, elm, juniper, and cypress. This soil produces well while fresh, but becomes worthless for cotton by long cultivation unless well marled or limed. The cost of cotton production is 10 cents per pound.

Cotton shipments are made, from October to March, to Norfolk, New Berne, and Baltimore. Rates of freight per bale are: to Norfolk, \$1 50; to New Berne, 50 cents.

CRAVEN.

Population: 19,729.—White, 6,664; colored, 13,065.

Area: 820 square miles.—Woodland, 197,135 acres.

Tilled lands: 50,853 acres.—Area planted in cotton, 12,838 acres; in corn, 19,001 acres; in wheat, 235 acres; in oats, 333 acres.

Cotton production : 5,782 bales; average cotton product per acre, 0.45 bale, 642 pounds seed-cotton, or 214 pounds cotton lint.

Craven is a large, straggling county, stretching 60 miles along the lower reaches of the Neuse river, which passes through its center and drains its entire area. The physical description of its territory, especially the southern and eastern sections, is identical with that of the two preceding counties. It consists largely of swamps, pocoson, and oak flats. The section lying north of the Neuse river belongs for the most part in its agricultural features to the second subdivision, or long-leaf pine belt, having considerable tracts of pine flats and long-leaf pine ridges, with a soil often very sandy and unproductive. Near its upper margin it is penetrated by considerable tracts of swamp and semi-swamp lands, which project southward from Pamlico river and form properly the western extension of Bay River swamp. Along the southern shore of Neuse river the soil is mainly a close gray loam. The great Dover pocoson, occupying more than 100 square miles in its southwestern angle, is elevated 60 feet above tide in its central part, and is very flat and sterile for the most part, but has strips of oak and pine flats radiating in all directions from the center along the numerous streams. Of the county area, 9.68 per cent. is tilled land, of which 25.25 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORTS OF CHARLES DUFFY, JR., AND JOHN HUMPHREY, OF NEW BERNE.

There is not a great deal of rolling land in this vicinity, and the kinds of soil cultivated in cotton are: brown lands, with fine clay subsoils; lowlands of the great swamp; and last, the light sandy soil on the banks of the Neuse river.

The *brown uplands* are the best for cotton, and a large proportion of the region is of this kind. The soil is timbered with pine, gum, holly, hickory, and dogwood, and its thickness is from 3 to 6 inches. The subsoil is heavier, and is usually a clay, underlaid at a depth of from 6 to 20 feet with shell marl, and in some places by hard-pan, which is leachy and impervious to water. Cotton, corn, oats, rye, pease, and potatoes are the leading crops, but the soil seems best adapted to corn and cotton, and the latter occupies probably 20 per cent. of the cultivated land. Cotton attains the height of from 18 to 36 inches, but inclines to run to weed in wet seasons, to prevent which we use marling and thorough draining. The yield is from 1,000 to 1,500 pounds of seed-cotton per acre, from 1,425 to 1,540 pounds being required for a 475-pound bale, which, when clean, rates as middling to good middling. After ten years' successive cultivation the yield is from 300 to 500 pounds per acre, and then from 1,485 to 1,600 pounds is needed to make a bale, which rates a grade or two lower than that from fresh land. The most troublesome weeds are dog-fennel, hog- and carrot-weed. About 10 per cent. of the land originally cultivated now lies turned out, but when taken in cultivation again it does admirably. Some damage is done by gullies and washes on slopes.

The *swamp land* occupies about 10 per cent. of the lands in this region. Its natural timber is gums, cypress, oak, poplar, and large pines (short-leaf). The average thickness of the soil is from 1 to 3 feet, when it changes into subsoil, which is heavier than the soil, and is usually a clay resting on sand and pebbles, and then on marl or rock. The soil is early and warm when well drained, and is apparently best adapted to corn, but makes good cotton. The proportion of cotton planted is 5 per cent, which usually attains and is most productive at the height of 3 feet. Fresh land produces from 1,000 to 2,000 pounds of seed-cotton per acre, 1,425 pounds being needed for a 475-pound bale, which rates the same in the market as that from the brown uplands. It produces after ten years' cultivation from 1,000 to 1,500 pounds per acre, 1,425 pounds being required to make a bale. The staple is usually better than that from fresh land. The soil is but little subject to gullies; no damage is done.

The *light sandy soil* also occupies about 10 per cent. of the lands in this region, and has a growth of oak, hickory, pine, and dogwood. The color is a whitish gray to the depth of 6 inches, when it changes to that of the subsoil, which is a yellow sand and clay, never difficult to till. This soil is admirably adapted to truck-farming, and with proper fertilizers many early vegetables of the finest quality can be produced. Cotton inclines to run to weed on this soil in very dry seasons. The staple from the fresh land rates, when clean, as middling.

Shipments are made, from October 1 to January 1, by steamboat to Norfolk, New York, and Boston. Rates of freight per bale are \$2 and \$3.

CARTERET.

Population : 9,784.—White, 7,107; colored, 2,677.

Area : 407 square miles.—Woodland, 67,211 acres.

Tilled lands : 17,984 acres.—Area planted in cotton, 2,936 acres; in corn, 5,156 acres; in wheat, 418 acres; in oats, 107 acres.

Cotton production : 1,014 bales; average cotton product per acre, 0.35 bale, 492 pounds seed-cotton, or 164 pounds cotton lint.

Carteret county occupies a long strip of country south of Craven county and of Pamlico sound, and is bounded southward by the Atlantic ocean. It is traversed east and west through the middle by a succession of swamps, the largest of which, occupying its eastern peninsular projection, is called the Open Ground Prairie swamp. This is a peat swamp, quite barren in its middle parts, but fringed around its margin with oak flats and gray silty soil. There is also a line of sand islands (sand dunes) along the coast, and inland, parallel to the coast, are several ridges of long-leaf pine sandy lands. The highest part of the county is only 37 feet above tide. Carteret has the advantage of the best harbor on the coast of this state. Of the county area, 6.90 per cent. is tilled land, of which 16.33 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF A. OAKSMITH, OF HOLLYWOOD (J. H. BEOTON ALSO FURNISHED A REPORT).

The soils on ridges, as also on the high banks bordering on Bogue sound, we term the uplands. In seasons of drought, our lowland cotton lands do the best; in ordinary seasons, upon an average, the uplands are most reliable.

The chief soil cultivated in cotton is a *light sandy loam*, which occupies the larger portion of the lands in this region, embracing all the uplands, plains, and ridges, and is timbered mostly with the different varieties of pine, with some oak. The soil is a fine and coarse sandy loam of a mixed gray, buff, and brown color to the depth of 20 inches, when it changes into that of the subsoil, which is heavier than the soil, and varies at different places, being in some places a strong bluish clay, in others a species of marl and a black peculiar rocky substance.

COTTON PRODUCTION IN NORTH CAROLINA.

The chief crops are cotton, corn, rye, oats, wheat, sorghum, Irish and sweet potatoes, and truck, but the soil is apparently best adapted to cotton, corn, sorghum, and sweet potatoes. Cotton attains the average height of 3 feet, and runs to weed in wet weather. Fresh land produces about 800 pounds of seed-cotton per acre, about 1,425 pounds making a 475-pound bale, which rates as middling when clean. After two years' cultivation the product is from 600 to 700 pounds per acre, about 1,540 pounds being needed to make a bale, the staple rating as low middling. Jerusalem oak and dog-fennel are the most troublesome weeds. About one-third of land once cultivated now lies turned out.

The bottom lands of Newport river are black prairie, with a darker heavy sandy loam soil.

In the lowlands are alluvial deposits and black swamp lands. Very little cotton is planted on these last two soils.

Cotton shipments are made in November by rail to New Berne at 75 cents per bale.

JONES.

Population: 7,491.—White, 3,212; colored, 4,279.

Area: 389 square miles.—Woodland, 134,598 acres.

Tilled land: 53,458 acres.—Area planted in cotton, 8,463 acres; in corn, 19,425 acres; in wheat, 429 acres; in rye, 245 acres; in oats, 455 acres.

Cotton production: 4,078 bales; average cotton product per acre, 0.48 bale, 687 pounds seed-cotton, or 229 pounds cotton lint.

The great tract of swamp land which lies between the Neuse river and the Atlantic ocean and extends through a considerable portion of the two preceding counties projects westward into Jones county, where it reaches its highest elevation of 40 feet, and is crowned by a chain of small lakes of from 1 to 3 or 4 miles diameter on the summit, on the border of Jones and Carteret counties. The northern border of the county is occupied by a portion of the great Dover pocoson, which projects into it from Craven. In its middle and southern sections lies a great part of the great White Oak swamp, the central portion of which is also a pocoson; but it is margined about with fringes of canebrake lands, white-oak flats, and cranberry marshes, as well as by considerable tracts of swamp lands covered with oak, cypress, gum, poplar, ash, etc. Trent river flows through the center and, with its tributaries, drains almost its entire area. Along this river on both sides are considerable bodies of long-leaf pine sandy lands. There are also along the main river, as well as its tributaries, narrow strips of oak flats and occasional gum and cypress swamps. The county resembles, therefore, very closely the two last described in physical features and in products and industries. Of the county area, 21.47 per cent. is tilled land, of which 15.83 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF H. C. FOSQUE, OF POLLOCKSVILLE.

On the Trent river, for a mile on each side, there is a level tract of land with a light soil; then we have a gray land with stiff clay subsoil. The stiff soils are most generally used for cotton, but fair crops are made on the light soil. Our best is the *light soil* having a clay subsoil. This soil is more easily drained and cultivated, and the cotton matures better, and makes the best yield. It occupies about one-eighth of the land in this region, and is found in a belt along the Trent river between the very light lands and those with very heavy clay subsoils. The timber is oak, hickory, poplar, and dogwood. The average thickness of the soil before its color changes into that of the subsoil is from 6 to 18 inches. The subsoil is clay, but not close pipe-clay. Cotton is the market crop, nearly all other crops being raised for home consumption, but corn is perhaps best adapted to the soil. The proportion of cotton planted is one-third. It is most productive at the height of 3 feet, and is inclined to run to weed when planted late or in ill-drained land; but efforts are made to restrain this by draining and the use of lime. Fresh land produces 700 pounds of seed-cotton per acre, 1,425 pounds being needed for a 475-pound bale, which, when clean, rates in the market as middling. After five years' cultivation it produces about 300 pounds per acre, and from 1,485 to 1,540 pounds are needed for a 475-pound bale. The lint is much shorter and not so strong as that from fresh land. Hog-weed is the most troublesome weed. The proportion of land once cultivated now lying out is very small; it washes and gullies on the slopes, but the damage is not great. The valleys are injured by the washings to a small extent, and efforts have been made to check it by horizontalizing with good success.

The *stiff land*, of which two-thirds is planted in cotton, extends from 5 to 10 miles back from the river, and is timbered with pine and has an undergrowth of gallberry. The soil is best adapted to cotton, and is a gray clay loam to the depth of from 1 to 2 feet. Cotton occupies two-thirds of the land that is cleared. The stalk grows to the height of 4 feet, but is most productive at 3 feet. In wet seasons, and when planted late, the cotton inclines to run to weed, but by drainage and lime this tendency can be checked. The land, when fresh, will yield from 500 to 700 pounds of seed-cotton per acre, 1,425 pounds making a 475-pound bale. This staple rates in the market as middling when clean. After five years' cultivation the soil yields 300 pounds per acre, and then 1,485 pounds make a bale. The staple is much shorter than that from fresh land. About one-tenth of this land once cultivated now lies turned out, and when taken into cultivation again it does not do so well for the first year, as it is then sour.

Cotton is shipped to New Berne. Rates of freight per bale are from 40 to 75 cents.

ONSLow.

Population: 9,829.—White, 6,600; colored, 3,229.

Area: 645 square miles.—Woodland, 212,866 acres.

Tilled lands: 56,120 acres.—Area planted in cotton, 6,658 acres; in corn, 23,259 acres; in oats, 96 acres.

Cotton production: 2,841 bales; average cotton product per acre, 0.43 bale, 609 pounds seed-cotton, or 203 pounds cotton lint.

The identical terms used in the description of the preceding county might be repeated for Onslow. Nearly one-half of the White Oak swamp lies in its northern section, and from it flow most of the streams by which the county is drained. The best agricultural lands of the county lie along the margin of this swamp. A great part of it is drained southward into New river, which traverses the entire length of the county from north to south. This river for one-half of its length is a broad, navigable bay, from 1 to 2 miles wide, and is famous for its fine oysters and fish. On both sides of it are large tracts of upland piny woods, with a gray sandy soil, which are admirably adapted to the

production of cotton. Nearer the sea-coast and its fringe of sounds the soils are more sandy, and are covered with long-leaf pines as their principal growth, a similar large tract occupying its northwestern section. There are numerous narrow fringes of cypress swamps along the various streams. A portion of the southwestern side of this county is penetrated by the Holly Shelter pocoson. The productions of this county are similar to those of the preceding. Of the county area, 13.59 per cent. is tilled land, of which 11.86 per cent. is cultivated in cotton.

Shipping is done by way of New river, which is navigable to the middle of the county.

PENDER.

Population: 12,468.—White, 5,509; colored, 6,959.

Area: 889 square miles.—Woodland, 287,700 acres.

Tilled lands: 38,156 acres.—Area planted in cotton, 1,463 acres; in corn, 16,550 acres; in wheat, 7 acres; in oats, 183 acres.

Cotton production: 835 bales; average cotton product per acre, 0.57 bale, 813 pounds seed-cotton, or 271 pounds cotton lint.

Pender county, like the preceding, is bounded in part on the south by the Atlantic ocean, with its fringe of sounds, marshes, and dunes, and is drained southward by the waters of the Northeast Cape Fear river. Holly Shelter pocoson occupies a large part of the southeastern section, and from it flow numerous creeks into the above-mentioned river, while others flow directly into the Atlantic. The central portion and larger part of this great pocoson, which contains about 100 square miles, is quite barren, but around its margin, especially toward the river, are considerable tracts of white-oak flats, canebrake, and swamp lands, with their characteristic growths and soils. In the northeastern section lies the half of another similar pocoson nearly as large, called Angola bay, and in the center of the western half of the county is a third but much smaller swamp of the same general character. The western side of the county for the breadth of from 6 to 8 miles belongs to the region of upland piny woods, the principal growth being long-leaf pines, with an undergrowth of oaks, hickory, dogwood, etc., and a sandy soil; but some of it approaches the character of the regular "sand-hills", with pine and oak flats here and there. Along the streams are generally alluvial belts or swamps and oak flats, which are the corn lands of the county. A savanna of several square miles is found in the upper end of the county, which merges northward into a barren pocoson of still greater extent. Marl abounds in all parts of the county, and Eocene limestone is found along the principal river above named. These add greatly to its agricultural advantages.

The cotton product is inconsiderable; the remaining products are corn, rice, potatoes, lumber, and naval stores. Of the county area, 6.71 per cent. is tilled land, of which 3.83 per cent. is cultivated in cotton.

Cotton and other products are shipped to Wilmington and Norfolk by rail, or to the former by the two Cape Fear rivers, which form the boundaries east and west.

NEW HANOVER.

Population: 21,376.—White, 8,159; colored, 13,217.

Area: 182 square miles.—Woodland, 39,603 acres.

Tilled lands: 7,396 acres.—Area planted in cotton, 142 acres; in corn, 2,008 acres; in oats, 86 acres.

Cotton production: 66 bales; average cotton product per acre, 0.46 bale, 663 pounds seed-cotton, or 221 pounds cotton lint.

New Hanover is one of the smallest counties in the state, and consists of a narrow triangular wedge between the Cape Fear river on the west and the Atlantic coast on the east, with its narrow fringe of sounds, marshes, and dunes. The margins of the streams and sounds are bordered in many places by narrow strips of oak and pine flats with a gray silty soil. The central portion of the county, as well as the dunes along the shore, are sandy and unproductive; but there are tracts of alluvial and swamp-land river bottoms along the Cape Fear which produce large crops of rice. The county contains the largest city in the state, Wilmington (population nearly 20,000). It is also the most important seaport, and has a large foreign as well as inland trade in lumber, naval stores, and cotton, both by means of its railways and navigable rivers. Of the county area, 6.35 per cent. is tilled land, of which 1.92 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF A. R. BLACK, OF WILMINGTON.

Cypress swamps are not, but sand flats (pocosons) are, very extensive in this county. Very good alluvial lands are to be found on both branches of the Cape Fear river, and sandy loams abound near these rivers and along the coast. The kinds of soils cultivated in cotton are *pine, oak, and hickory flats*, with clay subsoils which are inclined to be stiff. The proportion of the lands in the region of this kind is very small, not exceeding 3 per cent. The cotton lands are generally found near the streams and interspersed along the coast, and are timbered principally with long-leaf pine, with some short-leaf pine, hickory, dogwood, red oak, chinapin, and sweet gum. The average thickness of the soil is from 4 to 6 inches, with a subsoil of clay, mixed more or less with sand, under cotton lands. The chief crops are peanuts, corn, rice, sweet and Irish potatoes, and garden truck, but the soil is best adapted to peanuts and rice. The proportion of cotton planted is not one acre in one hundred. The height usually attained by the cotton-plant is 3 feet, and it is most productive at that height. It inclines to run to weed when planted in swamp lands, but guano or manure favors bolling. Fresh land produces from 500 to 1,000 pounds of seed-cotton per acre, about 1,540 pounds making a 475-pound bale, the staple rating as middling when clean. After several years' cultivation the product ranges from 400 to 800 pounds per acre, the staple rating the same as that from fresh land. Crab-grass is the most troublesome. About 5 per cent. of land once cultivated now lies turned out.

Cotton is generally hauled to Wilmington during November by river and rail.

BRUNSWICK.

Population: 9,389.—White, 5,337; colored, 4,052.

Area: 814 square miles.—Woodland, 304,722 acres.

Tilled lands: 18,006 acres.—Area planted in cotton, 385 acres; in corn, 4,915 acres; in wheat, 8 acres; in oats, 240 acres.

Cotton production: 244 bales; average cotton product per acre, 0.63 bale, 903 pounds seed-cotton, or 301 pounds cotton lint.

Brunswick county lies on the west side of the Cape Fear river, and touches the Atlantic on the south. Its central and western portion is occupied by the great pocoson known as Green swamp, which, with its many projections, covers nearly half of the territory of the county. This swamp is bordered by wide tracts of canebrakes, and contains extensive areas of gum, cypress, and juniper swamps, which have been for half a century the center of a large lumber trade. The various streams which flow from this swamp to all points of the compass are bordered by oak flats, tracts of semi-swamp, and often by canebrakes, and in the body of it are numerous hummocks or flat ridges having a silty soil and a growth of short-leaf pine and small oaks. Between the arms of the swamp, on the narrow divides, and particularly in the southern portion of the county, near the sea-shore, are patches of long-leaf pine lands with sandy soils, and elsewhere of level piny woods, valuable for lumber and naval stores. Along the Cape Fear are large bodies of alluvial lands of unsurpassed fertility, which are among the best rice soils in this country. Waccamaw lake occupies the highest part of Green swamp, and covers an area of about 40 square miles. Naval stores and lumber are, of course, the principal interests, agriculture being of subordinate importance, and limited mainly to the cultivation of rice, of which its product is more than double that of any other county in the state. Of the county area, 3.46 per cent. is tilled land, of which 2.14 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF W. G. CURTIS, OF SMITHVILLE.

The chief soil cultivated in cotton is a *fine sandy loam*, and the most of the land in this region is of this description, extending fifty miles in each direction. Its natural timber is pine, intermixed with black-jack and other varieties of oak. The soil is gray to the depth of 6 inches, but the subsoil is heavier, being a clay intermixed with sand. The chief crops are corn, sweet potatoes, cotton, and rice, and the soil is about equally adapted to all, except that sweet potatoes will grow on poorer land than the others. The height usually attained by cotton is from 2½ to 3 feet, and it is most productive at that height. When planted on very rich lowlands, or on soils having a sandy subsoil, the cotton-plant is inclined to run to weed. Fresh land produces 900 pounds of seed-cotton per acre, 1,425 pounds making a 475-pound bale, which, when clean, rates as low middling and middling. After years of cultivation it rapidly depreciates, unless kept up by manuring, and 1,660 pounds are then needed for a 475-pound bale. The staple is much shorter than that from fresh land. Crab- and cane-grass are troublesome. Very little of such land originally cultivated now lies "turned out". It does very well after resting a year or two, but it is subject to gullyng, and the damage is serious. The valleys are benefited by the washings of the uplands.

Shipments are made by rail and river, in December and January, to Wilmington; rate of freight per bale, 40 cents.

COLUMBUS.

Population: 14,439.—White, 8,926; colored, 5,513.

Area: 895 square miles.—Woodland, 357,014 acres.

Tilled lands: 38,293 acres.—Area planted in cotton, 2,113 acres; in corn, 15,723 acres; in wheat, 38 acres; in oats, 267 acres.

Cotton production: 930 bales; average cotton product per acre, 0.44 bale, 627 pounds seed-cotton, or 209 pounds cotton lint.

Columbus county lies farther inland and contains a larger proportion of upland piny woods soil than Brunswick. It is penetrated through all its parts by narrow belts of gum and cypress swamp and considerable tracts of oak and pine flats. The average soil of its upland piny woods is of moderate fertility, well adapted to the growth of cotton, but the richer swamp and gray-loam lands are devoted principally to corn. Brown marsh and White marsh are two large bodies of swamp in the eastern side of the county, and Gum swamp and others of less extent are found in the south and west. The production of cotton, potatoes, and rice divides with lumber and naval stores the interest of its people. Marl is found in several parts of the county. Of the county area 6.69 per cent. is tilled land, of which 5.52 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF D. S. COWAN, OF ROBESON.

The oak and hickory ridges have a light loam soil and a clay subsoil. The pine lands are stiff and heavy, and have a clay subsoil, generally underlaid with hard-pan. Marl underlies this whole region. Cotton in the lowlands runs to weed, and does not fruit well. The kinds of soils cultivated in cotton are: first, the oak and hickory ridges; second, the lowlands of Livingston creek above overflow; third, the cypress swamps, reclaimed. The *oak and hickory* is the chief soil, the proportion of this kind of land being about 40 per cent. Its natural timber is pine, oak, hickory, dogwood, maple, holly, walnut, and chinapin. The soil is a light clay loam, prairie-like, the color being brown or orange red, which does not bake or become sticky, and the average thickness 9 inches. The subsoil is heavier, the color being generally a light red, sometimes gray, and sometimes underlaid with hard-pan, which is quite impervious, and contains a limy substance, underlaid by clay at from 1 foot to 3 feet. The chief crops are corn, potatoes, cotton, pease, oats, rye, and vegetables of every description, the soil suiting them all remarkably well. The proportion of cotton planted is one-tenth, which is most productive at 3½ feet, but in very wet weather it is apt to run to weed. Fresh land produces 800 pounds of seed-cotton per acre, 1,400 pounds making a 475-pound bale, which, when clean, rates as good middling. After four years' cultivation the yield is 500 pounds per acre, and then 1,425 pounds are needed to make a bale, but it does not compare favorably with that from fresh land. Cocklebur and hog-weed are most troublesome. About 5 per cent. of such land originally cultivated lies turned out, and when again taken in, if marled, it does well. It is subject to gullyng on the slopes, but the damage is not serious.

The soil of the *level pine lands* (pine flats) is heavy, black, and smooth, with no sand in it, and forms about 20 per cent. of the lands. The average thickness of the soil is 2 inches. The subsoil is a sticky, fine clay, sometimes pure white, resembling kaolin, with hard-pan underneath, and impervious; it is difficult to till in wet and in dry seasons, and is too flat to drain cheaply. Native grasses for pasturing are apparently best adapted to this soil.

Cotton shipments are made in December by rail to Wilmington; freight, \$1 per bale.

LONG-LEAF PINE REGION.

(Embraces the following counties and parts of counties: Gates, Hertford, Bertie, Northampton, Halifax, Nash, Edgecombe, Pitt, Greene, Martin, Wilson, Johnston, Wayne, Lenoir, Duplin, Sampson, Cumberland, Harnett, Moore, Richmond, Robeson, and Bladen.)

GATES.

Population: 8,897.—White, 4,973; colored, 3,924.

Area: 339 square miles.—Woodland, 101,616 acres.

Tilled lands: 48,821 acres.—Area planted in cotton, 5,707 acres; in corn, 21,946 acres; in wheat, 708 acres; in oats, 1,210 acres.

Cotton production: 1,863 bales; average cotton product per acre, 0.33 bale, 465 pounds seed-cotton, or 155 pounds cotton lint.

Gates county lies between the Chowan river and the Dismal swamp, of which it includes a considerable section. The body of the county consists of level piny uplands, with a sandy loam soil. It has a narrow strip of very sandy, long-leaf pine land near the Chowan river, and also in the southeastern corner of the county. Along the Chowan river and its tributaries are tracts of cypress swamp from 1 to 2 and 3 miles wide. Near the smaller streams are narrow tracts of pine and oak flats having a gray clay loam soil. (For details see very full account below, by Mr. Gatling.) Marl is found in the banks of the Chowan river and in the southern end of the county. Of the county area, 22.50 per cent. is under tillage, of which 11.69 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF J. J. GATLING, OF GATLINGTON.

The following kinds of soils are cultivated in cotton: No. 1, light soil, with red-clay foundation; No. 2, sandy soil, with sandy foundation; No. 3, clayey and stiff soils, with pipe-clay foundation. The chief one is a *light soil*, which forms about one-fourth of the lands in this region, and extends a considerable distance north, west, and east. Its natural timber is a mixed growth—pine, oak, dogwood, maple, holly, and sweet gum. The soil is a whitish gray or black, according to location, to the depth of from 6 to 8 inches. The subsoil is heavier than the surface soil, being a red clay, which in some places is mixed with sand, and is sometimes impervious, but not generally so. Corn, cotton, sweet and Irish potatoes, wheat, oats, pease, and peanuts are the chief crops. The land tills easily in dry seasons, is early and warm where it is well drained, and the soil is well adapted to all of the above-named crops. The height usually attained by the cotton-plant is about 3 feet, and it is most productive at that height; but it is inclined to run to weed on low, wet lands and in wet seasons, and efforts have been made to restrain it and to favor bolling through underdraining and high fertilization. Fresh land produces about 600 pounds of seed-cotton per acre, and about 1,425 pounds are needed for a 475-pound bale, which, when clean, rates in the market as low middling. After ten years' cultivation the yield is from 400 to 500 pounds per acre, and about 1,660 pounds are needed to make a bale, which rates nearly as good as that from fresh land. Dog-fennel, hog-weed, crab- and wire-grass, and in some places nut-grass, are very troublesome. About one-half of the soil now lies turned out, and will do very well when again cultivated. In some places it gullies readily on slopes, serious damage being done, and the valleys are injured to a considerable extent by washings of the uplands. Efforts have been made, with very good success, to check the damage by hillside ditching and underdraining.

The *sandy soil* is timbered with long-leaf pine, oak, beech, and black-jack. It is a whitish-gray fine silt, with an average thickness of 6 inches before its color changes into that of the subsoil, which is lighter than the surface soil, being a yellow mixture of sand and clay, not impervious, but absorbs freely, and contains black and white gravel, underlaid by sand. As to tilling qualities, it is heavy in wet and light in dry seasons, and is early, warm, and generally well drained. This soil is best adapted to corn, sweet and Irish potatoes, pease, and peanuts. Cotton is most productive at the height of 3 feet, and is apt to run to weed in very wet weather, for which high manuring, good culture, and early planting are used as a remedy. Fresh land produces about 700 pounds of seed-cotton per acre, and about 1,540 pounds will make a 475-pound bale, and when clean the staple rates in the market as strict low middling. After ten years' cultivation the yield is 300 pounds per acre, and about 1,540 pounds are then needed to make a bale, but its staple rates as good as that from fresh land. Crab- and nut-grass are the most troublesome weeds. A considerable portion of the land originally cultivated now lies turned out; rest improves it very much for a short time, say three years. No damage is done by washing on the slopes, but the valleys are perceptibly improved by the washings of the uplands.

Stiff land and clay soils constitute about one-third of the lands of the county, extending about 6 miles north and south, and are timbered with heavy oak, large yellow pine, ash, poplar, beech, and holly. It is a whitish gray and black (varying in different sections) heavy clay loam to the depth of from 4 to 6 inches, when it changes into the subsoil, which is heavier than the surface soil described as a white clay; it is very sticky when wet and hard and brittle when dry, and is underlaid by gravel and rock in some places at 6 feet. The soil is difficult to till in wet and hard in dry seasons, and is best adapted to wheat, oats, and other small grain. A very small proportion of cotton is planted on these soils, and the plant is most productive at the height of 3 feet. Thorough draining, good culture, and high fertilization are used to restrain it from running to weed and to favor bolling. Fresh land produces from 600 to 700 pounds of seed-cotton per acre, about 1,425 pounds being needed to make a 475-pound bale. After ten years' cultivation it produces very little, and it does not pay to cultivate it when worn down. Cotton on lowlands is more liable to disease, such as blight, sore-shin, rust, runs too much to weed, grows too late, and is liable to be killed by frost. Hence we prefer upland for cotton where the soil is good and red clay lies near the surface. Such land is more susceptible of improvement, is more easily cultivated, can be planted ten or fifteen days sooner, yields a better quality of lint, and yields better every way.

Cotton shipments are made to Norfolk, by rail and by steamboat. Rate of freight per bale, \$1.

COTTON PRODUCTION IN NORTH CAROLINA.

HERTFORD.

Population: 11,843.—White, 5,122; colored, 6,721.

Area: 376 square miles.—Woodland, 119,330 acres.

Tilled lands: 53,625 acres.—Area planted in cotton, 14,605 acres; in corn, 25,521 acres; in wheat, 817 acres; in oats, 1,800 acres.

Cotton production: 6,360 bales; average cotton product per acre, 0.44 bale, 621 pounds seed-cotton, or 207 pounds cotton lint.

Hertford county lies on the northern border of the state, and is bounded eastward by the Chowan river. The soils are for the most part of the general region of upland piny woods lands, but near the water-courses there are considerable tracts of oak and pine flats and alluvial land. Along the margin of the Chowan and some of the other water-courses are fringes of gum and cypress swamp. Marl in abundance underlies the surface. Besides the culture of cotton and corn, there are the fish, lumber, and naval-stores industries. Of the county area, 22.28 per cent. is tilled land, of which 27.24 per cent. is cultivated in cotton. Cotton, lumber, and other products are shipped by steamer and rail to Norfolk.

ABSTRACT OF THE REPORT OF JUDGE DAVID A. BARNES, OF MURFREESBORO'.

The soils of most importance are the *sandy uplands*, which have clay subsoils and a timber growth of oak, dogwood, and pine; thickness from 3 to 4 inches. The chief crops are corn, cotton, pease, and sweet potatoes. The proportion of cotton planted is one-third, which runs to weed in wet seasons, the remedy for which is a free use of fertilizers, especially dissolved bone. Fresh land produces 800 or 900 pounds of seed-cotton per acre, from 1,425 to 1,540 pounds making a bale. Crab-grass is the most troublesome pest in cotton cultivation. About one-third of this land once cultivated lies turned out. It washes on slopes, doing some damage, while the valleys are improved.

BERTIE.

Population: 16,399.—White, 6,815; colored, 9,584.

Area: 689 square miles.—Woodland, 184,070 acres.

Tilled lands: 82,377 acres.—Area planted in cotton, 19,455 acres; in corn, 37,735 acres; in wheat, 309 acres; in oats, 2,403 acres.

Cotton production: 7,290 bales; average cotton product per acre, 0.37 bale, 534 pounds seed-cotton, or 178 pounds cotton lint.

Bertie county lies south of Hertford, in the angle between the Roanoke and Chowan rivers, and consists for the most part of level piny uplands, having a sandy loam soil; but the northern part of it is largely pine flats, having an infertile ash-colored, fine sandy soil. The southern part, near the Roanoke river, and along its chief tributary, the Cashie, are wide tracts of level oak and pine lands, which are very productive. The Roanoke river through almost the whole length of this county is bordered by a tract of alluvial lands from 3 to 6 miles wide, subject to annual overflows, and covered with heavy forests of cypress, maple, ash, etc., which are among the most fertile of the continent. In the middle region, on and near the Cashie and its tributaries, are considerable bodies of valuable swamp and semi-swamp lands. Cotton, corn, potatoes, fish, and lumber make up the list of industries of this county. Marl is found in the southern and middle sections. Of the county area, 18.68 per cent. is in tilled land, of which 23.62 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORTS OF E. B. ETHERIDGE, OF COLERAIN, AND J. B. CHERRY, OF WINDSOR.

Cotton is generally planted on the *uplands*, which are light, having clay bottoms. These form the larger portion of the cotton lands, and extend all over the county. The timber is mostly pine. The subsoil is heavier, being a red, yellow, or white clay. The chief crops are corn, cotton, oats, and Irish and sweet potatoes, but the soil is best adapted to corn and potatoes. Cotton occupies about one-third of the tilled land, and grows to 3½ feet in height. It inclines to run to weed in warm, moist weather, which indicates a bad crop, and topping is the only remedy used to restrain it. Fresh land produces 650 pounds of seed-cotton per acre, 1,485 pounds being needed for a 475-pound bale, which grades as low middling. After years of cultivation the soil makes very poor cotton. Crab-grass is the most troublesome weed. A considerable amount of land once cultivated now lies turned out. It washes and gullies very readily on the slopes, and the valleys are injured to a considerable extent by the washings of the uplands.

Cotton shipments are made in October and November, by steamboat, to Norfolk and Baltimore. Rates of freight are \$1 to \$1 25 per bale.

NORTHAMPTON.

Population: 20,032.—White, 7,987; colored, 12,045.

Area: 557 square miles.—Woodland, 144,779 acres.

Tilled lands: 96,565 acres.—Area planted in cotton, 36,219 acres; in tobacco, 36 acres; in corn, 45,224 acres; in wheat, 1,725 acres; in oats, 4,805 acres.

Cotton production: 13,616 bales; average cotton product per acre, 0.38 bale, 537 pounds seed-cotton, or 179 pounds cotton lint.

Northampton county is situated between the Virginia border and the Roanoke river. Its soils belong to the general region of level piny uplands, merging toward the western limit into oak uplands and a more hilly surface, with an elevation of 150 feet above sea-level. Its numerous streams have general fringes of oak flats, alluvions, or gum and cypress swamps, and the Roanoke river has in its extensive "bottoms" some of the best corn lands in the state. Of the county area, 27.09 per cent. is tilled land, of which 37.51 per cent. is cultivated in cotton. For further details, reference may be had to the report of J. B. Macrae.

ABSTRACT OF THE REPORT OF J. B. MACRAE, OF JACKSON.

The low grounds alluvial soils of the Roanoke river, are cultivated only in corn. The next body of land is 4 feet above the highest water mark of freshets, and about 25 feet above the low grounds. Then comes the section of the county known as "piny woods".

The best land in this section for cotton is a peculiar *gray soil* having a hard red-clay subsoil, and commonly designated "piny woods", which occupies two-thirds of the county and is timbered with short-leaf pine and red or black oak. The color before it changes into that of the subsoil is whitish gray to the depth of 6 inches. The chief crops are cotton and corn, and the soil is well adapted to both. Three-fourths of the tilled land is planted in cotton. The plant is most productive when 2½ feet high, and inclines to run to weed when there is an unusual quantity of rain. Fresh land produces 1,200 pounds of seed-cotton per acre, and 1,485 pounds are needed for a 475-pound bale of lint, which rates as middling when clean. After three years' cultivation the product is 500 pounds per acre, and the staple is much shorter than that from fresh land. Crab-grass gives most trouble in cultivation, especially in damp, warm weather. One-fourth of the land once cultivated now lies turned out. Cotton shipments are made from the 1st of October by rail to Norfolk; the rate of freight is \$2 25 per bale.

HALIFAX.

Population: 30,300.—White, 9,137; colored, 21,163.

Area: 682 square miles.—Woodland, 178,508 acres.

Tilled lands: 130,219 acres.—Area planted in cotton, 43,206 acres; in corn, 44,790 acres; in wheat, 1,300 acres; in oats, 4,497 acres.

Cotton production: 16,661 bales; average cotton product per acre, 0.39 bale, 549 pounds seed-cotton, or 183 pounds cotton lint.

Halifax county lies between the Roanoke river on the north and Fishing creek, one of the confluent of the Tar river, on the south. The eastern and larger part of this county belongs to the normal type of upland piny woods, the western third to the oak uplands. Long-leaf and short-leaf pines are commonly mingled with a subordinate growth of oaks, hickory, dogwood, etc. The surface is generally level or a little rolling, with small, often abrupt, hills and ravines near the streams. The soil is a gray, sandy loam, with a yellow to brown subsoil. The creeks and larger streams nearly all flow southward into the Tar river, the water-shed, according to a curious topographical law previously referred to, lying quite close to the south bank of the Roanoke. The western section belongs in large part to the oak uplands region, having its characteristic gray, yellow, and reddish clay loam and sandy loam soils and rolling surface and predominant oak forests, with an intermixture of short-leaf pine. The crops of this section are largely grains (corn, wheat, etc.) and tobacco. The bulk of the cotton product is made in the eastern section.

The streams in the eastern section have often narrow, swampy tracts of gum and cypress along their margins, but there are extensive alluvial areas or bottoms on the larger rivers, especially the Roanoke, whose bottoms are of unsurpassed fertility. In the great bend of Scotland Neck are some of the finest cotton lands of the state. Marl is abundant in the middle and eastern sections. Halifax is one of the most prosperous cotton counties, and produces very large crops of grains besides, chiefly of corn, of which the product is nearly half a million bushels. Of the county area, 32.12 per cent. is tilled land, of which 33.18 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF R. H. SMITH, OF SCOTLAND NECK.

(Messrs. J. H. Parker, of Enfield, and J. N. Smith, of Scotland Neck, also furnished reports.)

The upland soils vary greatly from a light sandy soil to a stiff clay, and are found in patches of from 20 to 200 acres. The climate for cotton being a short one, the plants on the bottom lands grow too much to weed and too late, subjecting the crop to damage from early frost. The uplands, with suitable soils and proper fertilizers, are esteemed the best for cotton; but old lands are generally preferable to new when well manured.

The chief soil is a *fine clay loam* from 8 to 12 inches deep, the color of which is brown, and the subsoil is a red and yellow clay. This class of land constitutes one-fifth of the arable uplands, and has a growth of red oak, holly, hickory, poplar, etc. The crops are corn, cotton, oats, wheat, and pease, but the soil is best adapted to cotton and wheat. Cotton is planted on two-fifths of the uplands, and is most productive when 3½ feet in height. It inclines to run to weed in a wet August and September, and topping favors bolting. Fresh land produces from 800 to 1,000 pounds of seed-cotton per acre, 1,485 pounds making a 475-pound bale of lint, rating as low middling. After ten years' cultivation the product is 400 pounds per acre, the staple, when clean, rating about the same as that from fresh land, sometimes better. Crab-grass and hog-weed are most troublesome. No serious damage is done by gullies on the slopes.

The *sandy loam of the creek uplands* has a gray color to the depth of 10 inches and a subsoil of red, white, and yellow clay. It is easy to till, early, warm, and well drained, and is best adapted to cotton, corn, and pease, about one-fifth of the uplands being planted in the former. Cotton is most productive at the height of 3 feet. The product from fresh land ranges from 800 to 1,000 pounds of seed-cotton per acre, from 1,485 to 1,540 pounds being required to make a 475-pound bale, which rates, when clean, as low middling. After ten years cultivation the yield is 400 pounds per acre, the staple being quite as good as that from fresh land.

A *light gravelly loam* occupies one-fifth of the lands in this region. It is gray in color to the depth of 8 inches, when it changes into that of the subsoil, a yellow sand for 2 or 3 feet, then red and yellow clay. Its natural timber growth is pine, oak, and dogwood.

Cotton shipments are made in October, November, and December, by steamboat and rail, to Norfolk and Baltimore. Rates of freight per bale are \$1 50 to Norfolk and \$2 to Baltimore.

The report of Mr. J. N. Smith, of Scotland Neck, agrees substantially with the preceding.

The report of Mr. Parker adds several points: That the eastern half of the county is level and rolling and well adapted to cotton, but the western half, being hilly, is not suitable for cotton culture. The chief soil, a *gray upland*, extends 20 miles north, 60 miles south, 80 east, and 15 west. Tarboro' is the center of a fine cotton section with a radius of 50 or 60 miles, the natural growth being long- and short-leaf pine, oak, hickory, dogwood, sweet gum, etc. The soil is a fine sandy loam 12 inches deep. In the eastern section two-thirds of the tilled land is in cotton; in the western, from one-third to one-half.

NASH.

Population: 17,731.—White, 9,417; colored, 8,314.

Area: 595 square miles.—Woodland, 193,247 acres.

Tilled lands: 82,238 acres.—Area planted in cotton, 25,768 acres; in tobacco, 27 acres; in corn, 32,490 acres; in wheat, 3,787 acres; in oats, 3,875 acres.

Cotton production: 12,567 bales; average cotton product per acre, 0.49 bale, 696 pounds seed-cotton, or 232 pounds cotton lint.

The general topographical and agricultural features of Nash county correspond quite closely to those of Halifax, to which its situation is similar. It lies south of that county, and also on the borders of the oak uplands, to which the western part of it belongs. It is drained for the most part by the Tar river and its numerous tributaries, along which are narrow strips of alluvial soil with oak forests and occasional cypress swamps. The divides between these streams through the middle and eastern portions of the county belong to the region of level upland piny woods, the growth being a mixture of long-leaf and short-leaf pine, with oak, hickory, dogwood, etc. These soils are well adapted to the culture of cotton, and are of average fertility. The soils in many places in the western section are red or yellowish clay loams. This county lies largely within the area of the most productive cotton section of the state; the corn and potato crops are also important. Marl is abundant in the eastern part, but has not been extensively used. Of the county area 21.60 per cent. is tilled land, of which 31.33 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF J. M. MAYO, OF WHITAKER.

The uplands are preferable for cotton, as it grows too late on the lowlands and is liable to be killed by early frosts. The chief soil is *light gray*, having a clay subsoil, three-fourths of the uplands being of this description, and is timbered with oak, pine, poplar, sweet gum, and dogwood. The chief crops are cotton, corn, wheat, rye, and sweet and Irish potatoes, and it seems well adapted to all; but the proportion of cotton planted is at least half of the cultivated lands. The plant inclines to run to weed in wet weather, the only remedy for which is to plant as early as practicable and cultivate rapidly. The product from fresh lands ranges from 1,200 to 1,500 pounds of seed-cotton per acre, and 1,425 pounds will make a bale; clean staple rates as middling. After three years' cultivation the yield is about 400 pounds per acre. Rag- and hog-weed and crab-grass are most troublesome. About one-third of the land once cultivated now lies turned out, and rest improves it. The soil on the slopes in the light lands is subject to wash or gully, and efforts are made to remedy this by horizontalizing and hillside ditching with good success, but it requires constant attention.

The *stiff bottom lands* are found only on the creeks, rivers, branches, and swamps, and cover a small portion of the county. They are timbered with gum, oak, dogwood, beech, elm, and poplar. The soil is a blackish or brown heavy clay alluvium; the subsoil a bluish clay, sometimes a white sand, or yellow sand and yellow clay. Very little cotton is planted on this soil.

The Tar river bottoms occupy a very small portion of the lands. They are timbered, and are of the same character as the stiff bottom lands.

Cotton shipments are made by rail to Norfolk, Petersburg, Baltimore, and New York, and the rates of freight per bale are from \$1 95 to \$3 50.

EDGECOMBE.

Population: 26,181.—White, 7,968; colored, 18,213.

Area: 567 square miles.—Woodland, 125,083 acres.

Tilled lands: 132,875 acres.—Area planted in cotton, 51,880 acres; in corn, 46,235 acres; in wheat, 2,422 acres; in oats, 9,589 acres.

Cotton production: 26,250 bales; average cotton product per acre, 0.51 bale, 720 pounds seed-cotton, or 240 pounds cotton lint.

Edgecombe is a typical county of the long-leaf pine region. It is traversed through its middle portion by the Tar river, and is drained by its numerous tributaries. The soils are characteristically gray, sandy loams, with a yellow to brown subsoil, and belong to the region of level piny uplands. Along the borders of the various streams are frequent and extensive tracts of alluvial lands, and on some of them occur cypress and gum swamps. This is one of the leading cotton counties of the state, and on the percentage cotton map it will be seen to occupy the center of one of the zones of greatest production. It stands second among the counties of the state in its product of cotton, and its corn crop is also among the largest. The long-leaf pines, which were once found abundant over the whole surface of this county (and region), have been thinned until they are a subordinate element, so that the remaining forests are mainly of short-leaf pine and oak.

Both commercial fertilizers and the native marls have been more largely used than elsewhere in the state, and, in connection with compost, most effectively, so that Edgecombe has long been foremost in this special agriculture of the east. Of the county area, 36.62 per cent. is tilled land, 39.27 per cent. of the latter being cultivated in cotton. It has the advantage of both river and railroad transportation.

ABSTRACT OF THE REPORTS OF MESSRS. ELIAS CARR, OF OLD SPARTA, AND J. L. BRIDGES, OF TARBORO'.

The chief soil cultivated in cotton is what is designated as "*piny wood land*", which occupies from three-fourths to four-fifths of the land in this region, and extends 40 miles north, east, and west, and south to the South Carolina line. The natural timber is long- and short-leaf pine, oak, gum, hickory, and dogwood. The color of the soil is blackish when new, wearing white with age. The average thickness of the surface soil is 4 inches, when it changes into that of the subsoil, which is generally a yellow sand, with a very small percentage of clay. The soil is easy to till at all seasons. The chief crops are cotton, corn, wheat, and oats, but the proportion of cotton planted is about one-half of the whole acreage. The plant is most productive when 3 feet high, and only inclines to run to weed on fresh and ill-drained land, but it is improved by draining and marling. Fresh land produces from 400 to 1,000 pounds of seed-cotton per acre, from 1,400 to 1,540 pounds of cotton being required to make a 475-pound bale of lint, which rates as low middling when clean. After ten years' cultivation the yield is almost nothing. We manure from the beginning. Crab-grass is the most troublesome weed.

The quantity of cotton grown on other soils is insignificant. Bottom lands have a growth of gum, cypress, etc., and they are best adapted to corn and oats.

Cotton shipments are made in November and December, by water, to Norfolk and New York. Rates of freight are \$1 40 to the former and \$2 35 to the latter per bale.

The reports of Messrs. J. J. Battle, of Rocky Mount, and W. G. Lewis, of Tarboro', agree in most points with the above. They add that the spring is too late and the fall too early to realize full crops. Cotton runs to weed from overmanuring and excessive moisture in August, especially after a dry June and July, and the most troublesome weeds are hog-weed and crab-grass.

PITT.

Population: 21,794.—White, 10,704; colored, 11,090.

Area: 657 square miles.—Woodland, 217,222 acres.

Tilled lands: 103,302 acres.—Area planted in cotton, 31,147 acres; in corn, 46,482 acres; in wheat, 3,787; in rye, 284 acres; in oats, 3,301 acres.

Cotton production: 14,879 bales; average cotton product per acre, 0.48 bale, 681 pounds seed-cotton, or 227 pounds cotton lint.

The description of Edgecombe county applies, with scarcely a change, to this county also. The only mentionable difference is that it contains perhaps a larger proportion of swampy lands, both along the Tar river and its main tributaries and the two Cotentneys. The body of its area is the normal level, upland, piny woods, with their usual soils and forests. It is also one of the best cotton counties, and its grain crop is larger in proportion than that of most of the cotton counties, exceeding 500,000 bushels. Its product of rice and potatoes is also of considerable importance. Marl is abundant, and is used with the best results, as in Edgecombe. Of the county area, 24.57 per cent. is tilled land, and 30.15 per cent. of the latter is cultivated in cotton.

ABSTRACT OF THE REPORTS OF W. M. B. BROWN, OF GREENVILLE, AND JAMES JOYNER, OF MARLBORO'.

The uplands are known as "piny wood lands"—the very best lands for improvement—intersected by small streams just sufficient for drainage. On the lowlands cotton is prone to grow too late and be caught by frost; hence uplands are preferred for cotton, and as we are in the marl belt, a great abundance of which is found convenient to almost every farm, the use of this as a fertilizer we find to be especially valuable for all crops when used on the piny woods.

The chief soil cultivated in cotton is the *piny woods*, which occupies from three-fourths to four-fifths of the lands in the region and embraces the whole of Greenville township, except the bottoms of the river and the swamps. Its natural timber is pines, with oak, hickory, gum, and maple. The surface soil, from 6 to 8 inches deep, is of a gray yellow color, blackish in swamp and river bottoms. The piny woods are almost always underlaid with red or yellowish clay, with marl in the branches or small streams. This soil is best adapted to cotton, corn, and small grain, the bottoms being best adapted to corn, the sandy belt to small grain. Cotton occupies one-half of all cultivated land, and generally attains a height of 3 feet, but it is inclined to run to weed in wet seasons. Fresh land produces from 1,000 to 1,200 pounds of seed-cotton per acre, 1,425 pounds being required to make a 475-pound bale of lint, which rates as low middling when clean. After five years' cultivation the product is 400 pounds per acre, but the staple rates the same. Crab-grass gives most trouble. Not much land once in cultivation now lies turned out.

Cotton shipments are made by steamboat to Norfolk and New York. The rate of freight is \$1 35 to Norfolk, and \$2 50 to New York.

GREENE.

Population: 10,037.—White, 4,652; colored, 5,385.

Area: 257 square miles.—Woodland, 82,432 acres.

Tilled lands: 75,084 acres.—Area planted in cotton, 16,988 acres; in corn, 25,148 acres; in wheat, 3,638 acres; in rye, 394 acres; in oats, 1,738 acres.

Cotton production: 8,020 bales; average cotton product per acre, 0.47 bale, 672 pounds seed-cotton, or 224 pounds cotton lint.

The small county of Greene, adjoining Pitt on the south, and drained by the Cotentney (which crosses it through the middle) and its numerous tributaries, has the same general features, both as to its natural characteristics and as to the development of its agriculture, as Edgecombe county, but there are considerable areas of sandy pine lands and pine flats in the eastern angle and in the southern section. Its streams are also for the most part bordered by narrow fringes of alluvial land and of gum and cypress swamps. It has also along the courses of some of its tributaries considerable tracts of semi-swamp land, characterized by a dark gray loam of great fertility, notably Lousin swamp, near the southern border. Like the preceding counties, Greene finds marl and compost essential to successful cotton farming. There are still considerable areas of pine and cypress timber in the county. Of the county area, 45.65 per cent. is tilled land, of which 22.63 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORTS OF W. P. GRIMSLEY AND W. E. BEST, OF SNOW HILL.

About one-third of the land in this region is what is termed very *sandy*, one-fourth of which is planted in cotton. Its natural timber is pine, oak, and hickory. The soil is whitish-gray in color to the depth of 5 inches, when it changes into that of the subsoil, which is heavier than the surface soil, and is of a yellowish color. The chief crops are corn, cotton, wheat, rye, oats, and sweet and Irish potatoes. Cotton usually attains a height of from 20 to 30 inches, is generally most productive when 24 inches high, and is not inclined to run to weed on this soil. Fresh land produces from 600 to 800 pounds of seed-cotton per acre, 1,425 pounds making a 475-pound bale. After two years' cultivation the product is 600 pounds per acre, 1,485 pounds being required to make a bale. Carrot and crab-grass are most troublesome. About one-tenth of such land once cultivated now lies turned out.

The *sandy loam*, with a clay subsoil, occupies nearly two-thirds of the land, one-half of which is planted in cotton, its natural timber being pine, oak, and hickory. The average thickness of the surface soil is 5 inches, which is easy to till, and is best adapted to cotton, corn, wheat, and oats. Cotton grows from 3 to 4 feet in height, but is most productive when 4 feet high. The product from fresh land ranges from 1,000 to 1,200 pounds of seed-cotton per acre, and after two years' cultivation from 800 to 900 pounds, but there is no difference in the staple. About one-tenth of the land once cultivated now lies turned out, but when again taken in it does well.

The *swamps or lowlands* occupy one-twentieth of the lands in this region, and are timbered with gum, poplar, ash, maple, and bay. This soil is best adapted to corn, very little cotton being planted.

Cotton shipments are made by flat-boats to New Berne at \$1 per bale.

MARTIN.

Population: 13,140.—White, 6,661; colored, 6,479.

Area: 482 square miles.—Woodland, 175,116 acres.

Tilled lands: 56,377 acres.—Area planted in cotton, 13,444 acres; in corn, 24,209 acres; in wheat, 940 acres; in oats, 1,447 acres.

Cotton production: 6,383 bales; average cotton product per acre, 0.47 bale, 678 pounds seed-cotton, or 226 pounds cotton lint.

Martin county is bordered on the north by the very tortuous course of the Roanoke river, the tributary waters of which for the most part drain it northward into that river. The larger part of its territory belongs to the region of level piny uplands, having a gray sandy loam soil. The higher ridge land, near the south bank of the Roanoke river, has a soil lighter and more sandy, and is characterized by a considerable admixture of long-leaf pine, and the average proportion of oaks and short-leaf pine, etc. Along the Roanoke and some of its tributaries there are extensive bottoms or alluvial lands, and about the head streams of its tributaries considerable tracts of swamp land.

The agriculture of the county corresponds in its main features to that of Edgecombe and the adjacent counties, but its soils are less productive, and its agriculture is less advanced, partly because of its large and profitable lumber industry in the great cypress swamps of the Roanoke. Marl is abundant, and is used to a moderate extent. Of the county area, 18.28 per cent. is tilled land, of which 23.67 is cultivated in cotton.

ABSTRACT OF THE REPORTS OF J. R. LANIER AND WILLIAM SLADE, OF WILLIAMSTON.

Our uplands are much better suited to cotton culture than the bottoms or lowlands, as we have barely season enough to grow cotton to perfection. We cannot get an early start on the bottom lands in the spring.

The common designation of the chief soil is *piny wood levels*, three-fourths of more of the county being of this kind, extending all through this and many of the adjoining counties. Its timber is mostly long-leaf or pitch pine, short-leaf pine, oak, and dogwood. The average thickness of the surface soil is from 6 to 20 inches, when it changes into the subsoil, which is mostly of a pale red or yellowish color. The chief crops are cotton, corn, wheat, oats, and sweet potatoes, and the soil, when well fertilized, is well adapted to all. The proportion of cotton planted is about one-fourth or three-sevenths of this soil. It attains a height of from 2½ to 3 feet, at which it is most productive. It inclines to run to weed when planted late on cold, rich bottom land, and in wet seasons, the best remedy for which is kainit. Fresh land produces in a good season from 1,000 to 1,500 pounds of seed-cotton per acre, 1,425 pounds making a bale of lint. After two years' cultivation the product ranges from 600 to 800 pounds per acre, the same number of pounds being required for a bale. Carrot- and hog-weeds are most troublesome. Considerable damage is done in places by wash or gullies on the slopes.

Cotton shipments are made by steamboat to Norfolk, Baltimore, and New York, at the rates of \$1 to Norfolk, \$1 50 to Baltimore, and \$2 to New York.

WILSON.

Population: 16,064.—White, 8,655; colored, 7,409.

Area: 376 square miles.—Woodland, 114,530 acres.

Tilled lands: 65,255 acres.—Area planted in cotton, 23,706 acres; in corn, 27,288 acres; in wheat, 2,804 acres; in oats, 1,590 acres.

Cotton production: 13,049 bales; average cotton product per acre, 0.55 bale, 783 pounds seed-cotton, or 261 pounds cotton lint.

Wilson county lies on the western border of the long-leaf pine belt, and its soils belong almost exclusively to the region of level upland piny woods, and correspond to those of Edgecombe. This county is traversed by numerous streams, the most notable of which is the Cotentney, along which, as well as its tributaries, are found considerable tracts of alluvial land and swamps (gum and cypress). In all respects the agriculture of this county repeats that of Edgecombe both as to practice and as to results. It will be seen, by reference to the cotton percentage map that this territory also belongs to the region of highest production. Marl is found in the easter half of the county. Of the county area, 27.12 per cent. is tilled land, of which 36.33 per cent. is cultivated in cotton.

JOHNSTON.

Population: 23,461.—White, 15,996; colored, 7,465.

Area: 689 square miles.—Woodland, 29,966 acres.

Tilled lands: 104,407 acres.—Area planted in cotton, 32,193 acres; in tobacco, 36 acres; in corn, 45,045 acres; in wheat, 3,711 acres; in rye, 324 acres; in oats, 3,176 acres.

Cotton production: 15,151 bales; average cotton product per acre, 0.47 bale, 672 pounds seed-cotton, or 224 pounds cotton lint.

Johnston county lies on the upper waters of the Neuse river and its larger tributaries, which traverse it in a southeast direction, and consists for the most part of level and gently rolling piny uplands, with a few small bodies of more sandy and barren pine lands. It lies on the western margin of the long-leaf pine region, its southeastern half being characterized in its general features by the same soils and growth as the average of that belt, while along the northwestern margin the lands are more hilly and the piny belts are alternated along the streams and more hilly portions with oak and pine forests and gravelly loam soils. There are tracts of quite sandy soil in the eastern section, while in the middle section are large bodies of pine flats. Johnston is one of the most prosperous counties, as besides its large cotton crops the grain product reaches nearly 500,000 bushels, and its crop of potatoes exceeds 200,000 bushels. Of the county area, 23.68 per cent. is tilled land, of which 30.83 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF E. J. HOLT, OF PRINCETON.

The chief soil cultivated in cotton is the *pine lands*, which have a gray sandy soil, occupy about one-half of all the upland, and extend 40 miles west, 20 miles south, about 50 miles east, and north to the Virginia line, about 100 miles. Its natural timber is pitch-pine, oak, hickory, etc. The average thickness of the surface soil is from 4 to 6 inches before its color changes into that of the subsoil, which is a yellow clay, mixed with sand.

The chief crops are cotton, corn, oats, potatoes, pease, and wheat, but the soil is apparently best adapted to cotton, which crop occupies about one-third of all the cultivated lands. Cotton grows from 2 to 5 feet, but is most productive when 4 feet high. It inclines to run to weed in wet and warm weather. Fresh land produces from 600 to 1,000 pounds of seed-cotton per acre, 1,425 pounds being required to make a 475-pound bale of lint, which rates in the market as low middling when clean. After ten years' cultivation the product ranges from 300 to 500 pounds per acre, the staple rating about the same as that from fresh land. Crab-grass and Jamestown weed are most troublesome.

Cotton shipments are made as fast as baled by rail to Goldsboro' at 60 cents per bale.

WAYNE.

Population: 24,951.—White, 12,827; colored, 12,124.

Area: 601 square miles.—Woodland, 188,130 acres.

Tilled lands: 122,102 acres.—Area planted in cotton, 32,103 acres; in tobacco, 198 acres; in corn, 44,469 acres; in wheat, 7,041 acres; in rye, 819 acres; in oats, 1,779 acres.

Cotton production: 14,558 bales; average cotton product per acre, 0.45 bale, 645 pounds seed-cotton, or 215 pounds cotton lint.

Wayne county lies eastward of the Johnston county, south of Wilson county, and west of Greene, on the waters of the Neuse, which crosses its middle portion and drains almost the whole of it directly and by its tributaries. This county resembles in all respects the adjoining counties already described. Along the Neuse river and some of the other streams are considerable bodies of alluvial land and semi-swamp, and not infrequently fringes of cypress and gum swamp. Along the south bank of the Neuse is a narrow zone of pine barrens, conforming in its general trend to the curves of that river, and having a breadth of from 1 to 3 miles. Both this county and Johnston have still considerable areas of turpentine and timber lands.

The cotton and grain products of Wayne county are large, and those of rice and potatoes are considerable. There is an abundance of marl, and it has been used very profitably in former years; but latterly, as in the cotton region generally, commercial fertilizers have usurped the place of nearly all others. Of the county area, 31.74 per cent. is tilled land, of which 26.29 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF J. ROBINSON, OF GOLDSBORO'.

The uplands vary but little from one ridge to another, lying in tracts of from 100 to 2,500 acres each. Cotton on the lowlands is liable to be late, and therefore uplands are preferred.

The chief cotton soil is a *fine gray, sandy loam*, underlaid with clay, which occupies about three-eighths of the lands in this region and extends all over the county. It is timbered with oak and pines. The leading crops are cotton, corn, wheat, pease, and oats, and the soil seems well adapted to all. About one-fourth of the soil is planted in cotton, which attains the average height of 3 feet, but is most productive when 2½ feet high, and is apt to run to weed in excessive rainy, hot weather. Thorough draining and deep plowing will remedy this. Fresh land produces about 800 pounds of seed-cotton per acre, 1,425 pounds making a bale of lint, which, when clean, rates in the market as strict good-ordinary. After three years' cultivation the product is 600 pounds per acre, 1,425 pounds making a bale, the staple rating lower than that from fresh land. Crab-grass and carrot-weed are most troublesome. About one-eighth of land once cultivated now lies turned out. The other soils are a fine, stiff, brown soil and a light sandy river soil.

Cotton is shipped by rail to New York at \$2 50 per bale.

LENOIR.

Population: 15,344.—White, 7,277; colored, 8,067.

Area: 457 square miles.—Woodland, 122,571 acres.

Tilled lands: 83,943 acres.—Area planted in cotton, 19,150 acres; in corn, 29,838 acres; in wheat, 5,067 acres; in rye, 685 acres; in oats, 1,060 acres.

Cotton production: 8,235 bales; average cotton product per acre, 0.43 bale, 612 pounds seed-cotton, or 204 pounds cotton lint.

Lenoir county lies on the lower course of the Neuse, east of Wayne. The northern half consists of level piny uplands of the same character as those of the counties adjoining it on the north, having narrow tracts of swamp land along its water-courses, while in its western and northern parts there are wide tracts of level semi-swamp.

lands, which are characterized by a dark, fine gray loam of great fertility. The southern half of the county, south of the Neuse, is characterized generally by a more sandy soil, and on the higher divides between the streams by narrow zones of pine barrens. The water-courses in this half of the county are also bordered by cypress and gum swamps, and to some extent by oak and pine flats. Shell marl (blue), chalk marl, and greensand are all found in this county, one or the other in almost every neighborhood. Of the county area, 28.72 per cent. is tilled land, of which 22.82 per cent. is cultivated in cotton. Means of transportation are furnished by steamboat and railroad to New Berne, Wilmington, and Norfolk.

DUPLIN.

Population: 18,773.—White, 10,587; colored, 8,186.

Area: 832 square miles.—Woodland, 288,505 acres.

Tilled lands: 69,314 acres.—Area planted in cotton, 9,654 acres; in corn, 36,813 acres; in wheat, 1,031 acres; in rye, 422 acres; in oats, 433 acres.

Cotton production: 4,499 bales; average cotton product per acre, 0.47 bale, 663 pounds seed-cotton, or 221 pounds cotton lint.

Duplin county lies southward of the two preceding counties, and partakes of their general topographical and agricultural features. It is drained by the Northeast Cape Fear river, which flows southward through its middle section, and both this and the numerous tributaries are bordered by belts of alluvial and often swampy lands. Near its northern and eastern borders are two small pocosons, and within its southern section lies one-half of the great Angola Bay pocoson, an almost impenetrable jungle of the average character of pocoson lands, with fringes of rich swamp lands on the streams that issue from it. This pocoson is flanked on the westward toward the Northeast Cape Fear river by a fringe of fertile white-oak flats and semi-swamp lands. Between the tributaries of the river, on the divides, are several tracts of sandy pine hills, which are very unproductive. The cotton lands, which are of limited extent, are the level piny woods of the usual description; but corn is a more valuable crop, and the product of potatoes and rice are of considerable importance. The county has still valuable resources in timber and turpentine lands. Marl (blue and white) is abundant, though but little used. Of the county area, 13.02 per cent. is tilled land, of which 13.93 per cent. is in cotton.

ABSTRACT OF THE REPORT OF J. A. BRYAN, OF KENANSVILLE.

(J. B. Oliver, of Mount Olive, also furnished a report.)

The uplands of the county, comprising all kinds of soils, after being fertilized, are planted in cotton to a small extent. These uplands are all sandy, but vary in color and quality. Drought in May retards the cotton growth and renders it too late to make a full crop, and excessive rains, with cold weather during the month of May and early in June, affect the plant. Excessive drought in July and August induces rust sometimes where the soil is not manured heavily, but otherwise the cotton-plant will thrive under as unfavorable weather as corn or the other crops usually raised in this county.

The soil principally cultivated in cotton is the *stiff upland* or *loamy soil*. About one-third of the land in this region is of this kind, and it occurs in all parts of the county in areas of from 5 to 1,000 acres each. Its timber growth is long- and short-leaf pine, black and sweet gums, oak, hickory, and black-jack. The soil is a fine sandy loam, which varies in color from a gray to buff, yellow, brown, black, and chocolate. The average thickness of the surface soil is from 10 to 12 inches, with a subsoil that is heavier and is of a yellow or red clay, that bakes hard when exposed to the sun. These clays have from 50 to 75 per cent. of sand in their composition. The soil is easy to till. Corn, pease, sweet potatoes, wheat, and cotton are the chief crops of the region, but the soil is best adapted to corn, cotton, and sweet potatoes. The most productive height of the cotton-plant is 4 feet, but it runs to weed on alluvial or creek bottoms where there is an excess of moisture and organic matter. Fresh lands produce 300 pounds of seed-cotton per acre, and 1,545 pounds will make a bale of lint. After four years' cultivation the product falls off, but the staple rates about the same. Crab-grass is the most troublesome weed. Very little land once cultivated now lies turned out.

The naturally drained land, or *sandy upland*, occupies one-third of this region, and extends 20 miles through the central portion of the county, not entirely uninterrupted, and is timbered with pine, black-jack, red oak, chincapin, hickory, and sourwood. The average thickness of the surface soil is 6 inches before its color changes into that of the subsoil, which varies from a red to yellow clay, while in places a brown sand intervenes between the soil and clay. It is easy to till, and is early, warm, and well-drained. The proportion of cotton planted is about one-twentieth of the area under cultivation. Fresh land produces about 200 pounds of seed-cotton per acre, 1,545 pounds of which make a bale of lint, rating as middling when clean.

Gallberry lands occupy one-thirtieth part of the county, but are located mostly in the southeastern part, and are timbered with pine, gum, maple, etc.

Cotton shipments are made by rail to Wilmington at \$1 25 per bale of 450 pounds.

Mr. J. B. Oliver, of Mount Olive, divides the soils into *fine sandy uplands*, with red oak, short-leaf pine, hickory, and dogwood, amounting to one-eighth of the land, and having a soil 6 inches deep, one-fourth of its surface being planted in cotton; and *pine uplands*, with a long-leaf pine growth, making one-fourth of the lands in the section, one-fourth of which is in cotton. Another kind of land—*second pocoson*—timbered with water oak, white oak, overcup oak, rosemary pine (*P. taeda*), and sweet and blue gum, has a clay-loam soil. 4 feet deep and a subsoil of whitish, sticky clay. Very little of this soil is planted in cotton, as it is better for corn. The troublesome weeds are hog-weed, yellow-top, and crab-grass. The seasons are short between late and early killing frosts, April 20 and October 20.

SAMPSON.

Population: 22,894.—White, 13,347; colored, 9,547.

Area: 964 square miles.—Woodland, 374,576 acres.

Tilled lands: 116,892 acres.—Area planted in cotton, 15,346 acres; in tobacco, 28 acres; in corn, 53,951 acres; in wheat, 1,249 acres; in rye, 409 acres; in oats, 654 acres.

Cotton production: 6,291 bales; average cotton product per acre, 0.41 bale, 585 pounds seed-cotton, or 195 pounds cotton lint.

Sampson county lies in the middle of the long-leaf pine belt, and much the larger part of its territory represents the average character of the soils and forests of that belt. It is drained by South river, one of the principal tributaries of the Cape Fear, whose streams divide its territory into north- and south-lying belts or zones—flattish swells, the higher portions of which are characterized by sandy soils and forests predominantly of long-leaf pine. In places near the southern and western margins, and again near the northern end, there are tracts which are quite sandy and approach the character of pine barrens. There are also extensive pine flats, especially on the waters of Six Runs, with here and there considerable bodies of pine and oak flats.

The corn crop of the county is much more important than that of cotton, reaching nearly 500,000 bushels, and the crops of potatoes and rice are both unusually large. There are also large bodies of virgin pine timber, still valuable both for turpentine and for lumber. Marl is abundant, and is used with the best results in some sections, chiefly the northern. Of the county area, 18.95 per cent. is tilled land, of which 13.13 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF A. A. M'KAY, OF CLINTON.

Cotton depends very much upon a warm spring, so that it can start up sufficiently to get out of the way of the grass. Since commercial fertilizers have come into use, the cotton has been so pushed that the frost in the fall scarcely ever catches it, or at least few green bolls are affected. The kinds of soils cultivated in cotton are generally a soil that is stiff, caused by the clay being near the surface, and the rich sandy loams.

The chief soil is a *clayey and sandy loam*, which occupies about two-thirds of the lands in this region, and is timbered principally with long-leaf pine; many oak ridges have a growth of maple, poplar, black and sweet gum, elm, hickory, cypress, juniper, ash, beech, holly, dogwood, and cedar. The chief crops are cotton, corn, pease, sweet potatoes, wheat, rye, oats, tobacco, etc., but the soil is best adapted to corn and cotton, and about one-fourth of every farm is planted in cotton. The plant usually attains a height of from 3½ to 4 feet, and is most productive at that height. It does not incline to run to weed, except on alluvial lands or lands very highly manured; topping favors bolting.

Fresh land produces about 750 pounds of seed-cotton per acre, about 1,425 pounds making a 475-pound bale of lint, which, when clean, rates in the market as low middling. After ten years' cultivation the yield per acre is 300 pounds. Cocklebur is the most troublesome weed. About two-fifths of land once cultivated now lies turned out, and when again taken in produces better than if cultivated every year. The valleys are improved by the washings of the slopes. Efforts have been made to check the damage done to the slopes, by plowing in curved lines and by hillside ditching, with profit to the lands and to the crops.

Cotton shipments are made in November by rail to Wilmington. The rates of freight are 50 cents per bale to Wilmington and \$2 50 to New York. Most of the cotton in the county is sold to merchants in Clinton, the county-seat.

CUMBERLAND.

Population: 23,836.—White, 12,594; colored, 11,242.

Area: 982 square miles.—Woodland, 294,178 acres.

Tilled lands: 54,238 acres.—Area planted in cotton, 9,210 acres; in corn, 32,677 acres; in wheat, 1,141 acres; in rye, 1,513 acres; in oats, 1,509 acres.

Cotton production: 3,905 bales; average cotton product per acre, 0.42 bale, 603 pounds seed-cotton, or 201 pounds cotton lint.

Through the middle of Cumberland county, from its western margin, on the Moore county-line, to the Cape Fear river, which crosses the eastern side of the county, lies a broad, irregular zone of pine barrens with a very sandy and unproductive soil and an almost exclusive growth of long-leaf pine. On both sides of this zone, along the northern and southern sections of the county, with unimportant exceptions, and in the section eastward of the Cape Fear river, the soils belong to the class of gray sandy loams of the average upland piny woods. Near the river, on both sides, are large tracts of semi-swamp and oak and pine flats, which are very productive. Many of the streams which flow from the central pine barrens of the county contain narrow fringes of gum and cypress swamp, and the swampy tracts along the river often contain a considerable percentage of cypress. The turpentine and lumber interests are still important. Of the county area, 8.63 per cent. is tilled land, of which 16.98 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF O. EVANS, OF IDAHO.

The uplands are much better for cotton than the lowlands, but if the fall is late the lowlands are the best. The kinds of soil cultivated in cotton are sandy and clay loams. The *clay soil* is the chief, and occupies two-thirds of the land in this region, two-thirds of which is planted in cotton. It is timbered with sweet gum, pine, oak, etc. The chief crops are cotton and corn, but the soil is apparently best adapted to cotton. The plant is most productive when 2 feet high, and runs to weed in rich, damp lands. Fresh lands produce 1,000 pounds of seed-cotton per acre, and 1,425 pounds will make a 475-pound bale of lint. After five years' cultivation the product is 600 pounds per acre, the staple comparing favorably with that from fresh land. Cocklebur is the most troublesome weed. About one-fifth of the land once cultivated now lies turned out.

Cotton shipments are made in November and December, by rail and steamboat, to Wilmington and New York, and the rates of freight are from 75 cents to \$1 50 per bale.

HARNETT.

Population: 10,862.—White, 7,092; colored, 3,770.

Area: 601 square miles.—Woodland, 175,096 acres.

Tilled lands: 42,173 acres.—Area planted in cotton, 9,281 acres; in tobacco, 32 acres; in corn, 21,244 acres; in wheat, 2,393 acres; in rye, 489 acres; in oats, 1,202 acres.

Cotton production: 3,627 bales; average cotton product per acre, 0.39 bale, 558 pounds seed-cotton, or 186 pounds cotton lint.

Harnett county lies on both sides of the Cape Fear river, on the northwestern margin of the long-leaf pine belt. Near the river, and for several miles on both sides, its surface is quite hilly in its upper portion, and here the soil is of the intermediate character described on page 16 as oak and pine sandy and gravelly hills. On the tops of the

ridges and river hills these soils are gray, sandy loams; but on the slopes they approach the character of clay loams, and are covered mainly with forests of oak and short-leaf pine. The body of the county belongs strictly to the long-leaf pine belt, and has the general characteristics of that region. The western section, as well as a narrow belt in the middle near the south bank of the river and some portions of the south side, partakes in part of the character of the pine barrens. Near the river, and along its principal tributaries from the west, and in the angles between these and the river, are wide tracts of gray, clayey, silty lands (oak and pine flats) and occasional narrow strips of gum and cypress swamp. Cotton production is the principal industry of the county, but grain, lumber, and turpentine are also important products. Of the county area, 10.96 per cent. is tilled land, of which 22.01 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF H. C. M'NEILL, OF LILLINGTON.

The upland soil does not vary much, and the only difference in the first two described is that there is some sand in one and none or very little in the other. The cotton in the lowlands is late and runs too much to weed, and is liable to be prematurely killed by frost.

The *gray upland soil* is a mixture of putty-like land and coarse sand, and such is nearly all the land between the Cape Fear and Little rivers for several miles before they unite. Its natural timber is oak, dogwood, sweet gum, hickory, and pine. The average thickness of the surface soil is 18 inches, and the subsoil is a clay or yellow loam, becoming by cultivation like surface soil. The chief crops are cotton, corn, wheat, and oats, but the soil is best adapted to cotton and corn. The proportion of cotton planted is one-half of the land cultivated; it attains the height of from 1 to 4 feet, and is most productive when from 2½ to 3 feet high. On new land, and in wet weather, it inclines to run to weed. Fresh land produces from 600 to 800 pounds of seed-cotton per acre, 1,480 pounds making a 475-pound bale of lint. After ten years' cultivation the product is from 300 to 400 pounds per acre. Hog-weed is the most troublesome.

The *gray upland dark-loam soil*, with very little or no sand, occupies about one-third of the lands in this region. It joins the Cape Fear bottoms, and extends about 10 miles. The thickness of the surface soil is 12 inches, over a subsoil of yellow clay, one-half of which is planted in cotton.

The *yellow-loam soil*, which runs alongside of the Cape Fear river, is to some extent subject to overflow. The proportion of cotton planted is very small, and the natural timber is heavy oaks and gums of both kinds. The subsoil is a red clay, becoming very hard when exposed, but like the surface soil when under cultivation. The cotton-plant inclines to run to weed under all circumstances. Guano favors bolling, and causes the cotton to open better. Iron-weed is thick all over this land.

Cotton shipments are made by rail to Fayetteville and Raleigh. Rate of freight per bale, \$1 25.

MOORE.

Population: 16,821.—White, 11,485; colored, 5,336.

Area: 807 square miles.—Woodland, 281,934 acres.

Tilled lands: 68,780 acres.—Area planted in cotton, 8,882 acres; in tobacco, 70 acres; in corn, 27,934 acres; in wheat, 11,242 acres; in rye, 1,512 acres; in oats, 7,924 acres.

Cotton production: 3,988 bales; average cotton product per acre, 0.45 bale, 639 pounds seed-cotton, or 213 pounds cotton lint.

Moore county lies on the western margin of the long-leaf pine belt. Its middle and southern portion belongs largely to the class of lands called pine barrens or "sand hills". The northern part of this triangular territory partakes more of the character of the oak uplands agricultural division, being very hilly and broken, with sandy and gravelly soil on the higher ridges, having a mixed oak and pine growth, and on the slopes of the hills partaking of the character of clay loams.

Near the middle (a little north of east), as well as in the southwestern region, and in the eastern one, are considerable bodies of level and rolling upland piny woods. These are the best cotton soils. The tributaries of the Cape Fear, which rise along the southeastern section of the county, are fringed with gum, cypress, and juniper swamps, and on many of the streams, large and small, are patches, and sometimes considerable tracts, of alluvial "bottom" lands. The agriculture of the county is divided between cotton and grain crops; but the lumber and turpentine interests are quite important, and there are yet large turpentine forests untouched.

Of the county area, 13.32 per cent. is tilled land, of which 12.91 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORTS OF J. M. JOY, OF JONESBORO', AND DR. J. C. CAMPBELL, OF CARTHAGE.

The bottoms of Deep river and its tributaries are our most valuable corn soils, and are not cultivated in cotton. They are estimated to form one-twentieth of the whole.

About four-fifths of the land in this region embraces what is termed "*sandy soil*", and extends to the Atlantic coast on the south. The timber is pine, oak, hickory, black-jack, chinquapin, and dogwood. The color of the soil varies from a whitish-gray to a yellowish-brown and blackish to the depth of 6 inches, when it changes into that of the subsoil, which in some places is soft sand, in others red or yellow clay. The soil is early, warm, and well drained. The chief crops are corn, cotton, wheat, oats, potatoes, and pease.

The proportion of cotton planted is about one-fifth, and usually grows from 1 to 4 feet in height, 3 feet being the most productive height. It inclines to run to weed when grown on fresh or damp land. Fresh land produces about 600 pounds of seed-cotton per acre, 1,400 pounds making a 475-pound bale of lint, the staple, when clean, rating as middling. After ten years' cultivation the product is 400 pounds per acre, and the staple is shorter than that from fresh land. Crab-grass is the most troublesome. About one-fourth of the land once cultivated now lies turned out. No great damage is done by washing or gullyng on the slopes.

Cotton shipments are made by rail to Raleigh at \$1 25, and to Fayetteville at 75 cents per bale.

RICHMOND.

Population: 18,245.—White, 8,141; colored, 10,104.

Area: 826 square miles.—Woodland, 216,096 acres.

Tilled lands: 75,268 acres.—Area planted in cotton, 25,198 acres; in corn, 29,502 acres; in wheat, 3,751 acres; in rye, 942 acres; in oats, 3,571 acres.

Cotton production : 12,754 bales; average cotton product per acre, 0.51 bale, 720 pounds seed-cotton, or 240 pounds cotton lint.

Richmond county also lies on the border of the long-leaf pine belt, its eastern and southern portions, forming not less than three-fourths of its territory, belonging to the latter, while its western and northern parts, lying along and near the Great Pedee river, belong more properly in their agricultural features to the zone of oak and pine sandy hills, being quite hilly, and in some places rugged. The slopes of the hills on the river front and its tributaries are quite steep and broken, and have a clay loam soil, which is covered by oak and short-leaf pine forests. In the northwestern corner, on the Pedee and its tributaries, are wide tracts of level gray loam soils, originally covered with heavy oak forests. Through the eastern portion of the county, in a north and south direction, lies a considerable tract of pine barrens, which is very sandy and unproductive. The streams which drain the southeastern section of the county (one-third of its territory) flow into Lumber river, and are margined through their whole course by alluvial tracts and cypress swamps, the divides between these parallel and south-flowing streams being occupied by level upland piny-woods tracts having a gray sandy loam soil of fair productiveness. Cotton is the chief single interest, but the product of grain is large, and the turpentine and lumber interests are still important. Of the county area, 14.24 per cent. is tilled land, of which 33.48 per cent. is cultivated in cotton.

ROBESON.

Population : 23,880.—White, 11,942; colored, 11,938.

Area : 1,039 square miles.—Woodland, 383,093 acres.

Tilled lands : 103,055 acres.—Area planted in cotton, 21,607 acres; in corn, 49,961 acres; in wheat, 875 acres; in rye, 1,548 acres; in oats, 2,814 acres.

Cotton production : 8,846 bales; average cotton product per acre, 0.41 bale, 582 pounds seed-cotton, or 194 pounds cotton lint.

The soils of Robeson county are mainly those of the ordinary level piny woods, but there are belts of gum and cypress swamp along nearly all of its water-courses, those on the two main streams being quite large. The county is drained by the upper waters of Lumber river, which enters the Atlantic through the state of South Carolina at Georgetown. On the higher divides between the streams the soil is sometimes quite sandy, in some places reaching the character of pine barrens. The lands are chiefly devoted to the culture of cotton and corn, but the value of the potato and rice crops is quite considerable. Turpentine and lumber are also large interests. Marl is found abundantly in the lower half of the county. Of the county area, 15.50 per cent. is tilled land, of which 20.96 per cent. is cultivated in cotton. Shipments are made by rail to Wilmington.

BLADEN.

Population : 16,158.—White, 7,598; colored, 8,560.

Area : 1,026 square miles.—Woodland, 297,237 acres.

Tilled lands : 37,990 acres.—Area planted in cotton, 1,618 acres; in corn, 21,556 acres; in wheat, 109 acres; in oats, 362 acres.

Cotton production : 683 bales; average cotton product per acre, 0.42 bale, 603 pounds seed-cotton, or 201 pounds cotton lint.

Bladen county lies south of Cumberland, and, like it, on both sides of the Cape Fear river. It has narrow zones of pine barrens running parallel to the river courses nearly the whole length of the county, and it also abounds in cypress swamps and alluvial "bottoms" along its streams. There are also large bodies of level piny woods. Marl is found in the bluffs of the river. On many of the streams are extensive bodies of gum and cypress swamps. This county has a very limited agriculture, the chief crop being corn; and very little cotton is produced, turpentine and lumber being still among the chief interests. Of the county area, only 5.79 per cent. is tilled land, of which 4.26 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF D. A. LAMONT, OF BRINKLAND.

The upland soils vary greatly in appearance and quality, and may be found in spots and patches of from 1 to 300 acres. Cotton in the lowlands will not mature, and is subject to be killed by frost; therefore the uplands are always preferred.

Three kinds of soils may be distinguished:

(1.) The *gray gravelly soil*, with clay subsoil, forming about one-third of the land in this region. Its natural timber is cypress, oak, poplar, ash, hickory, gum, pine, and walnut. The crops are corn, cotton, and small grain, but the soil is best adapted to cotton, corn, and oats. The cotton crop occupies about one-fourth of the lands, and is most productive when 3 feet high. It is inclined to run to weed in the richest land and in wet seasons, and efforts are made to restrain this tendency by topping and by using less heating manures. The product from fresh land ranges from 1,200 to 1,500 pounds of seed-cotton per acre, 1,425 pounds making a 475-pound bale, which rates in the market as good middling. After three years' cultivation the land yields from 800 to 1,000 pounds per acre, from 1,425 to 1,540 pounds being required to make a bale, which rates as low middling. Rag-weed and hog-weed are most troublesome. About one-third of the land once cultivated now lies turned out, but when it is again taken in it is found to be much improved. The valleys are considerably improved by the washings of the uplands.

(2.) *Chocolate-colored soil*, rich by deposits, occupies one-sixth of the lands in a belt one-half a mile wide by from 12 to 15 miles long. The average thickness is 2 feet before changing into that of the subsoil, which is heavier and sticky. This soil is best adapted to corn, wheat, and oats. Cotton runs to weed under all circumstances.

(3.) *Black soil*, mixed with coarse and fine sand, occupies one-half as much surface, and is about 10 miles long by 2 miles wide. This soil is timbered with pine, bay, black gum, and gallberry. The subsoil contains pipe-clay, and is adapted to corn, potatoes, and cotton; but one-fifteenth of this soil is planted in the latter crop. Fresh land produces from 600 to 1,000 pounds of seed-cotton per acre, which rates in the market as middling.

Cotton shipments are made by steamboat to Wilmington. Rates of freight, per bale, 50 cents.

OAK UPLANDS, OR METAMORPHIC REGION.

(This region embraces the following counties and parts of counties: Warren, Franklin, Granville, Wake, Orange, Chatham, Montgomery, Anson, Union, Stanley, Davidson, Rowan, Cabarrus, Mecklenburg, Iredell, Catawba, Lincoln, Gaston, Cleaveland, Rutherford, Randolph, Guilford, Alamance, Person, Caswell, Rockingham, Stokes, Forsyth, Davie, Yadkin, Surry, Wilkes, Alexander, Caldwell, Burke, McDowell, and Polk.)

WARREN.

Population: 22,619.—White, 6,386; colored, 16,233.

Area: 507 square miles.—Woodland, 140,528 acres.

Tilled lands: 83,864 acres; area planted in cotton, 21,603 acres; in tobacco, 1,759 acres; in corn, 28,457 acres; in wheat, 5,098 acres; in oats, 5,559 acres.

Cotton production: 7,778 bales; average cotton product per acre, 0.36 bale, 513 pounds seed-cotton, or 171 pounds cotton lint.

Warren county lies on the northern border of the state, and is bounded in part by the Roanoke river, the tributaries of which drain about one-half of its territory, the southern half being drained by the Tar river. Through the middle of the county, along the divide between these rivers, lies a wide, level, and undulating tract, with forests of oak and short-leaf pine, hickory, dogwood, etc., having generally a soil of the class of gray and yellowish gravelly and sandy loam, and frequently belts of red-clay loam. Northward and southward the land becomes more hilly, and near the streams the soil is more clayey and often reddish in color. Many of these streams are bordered by narrow strips of level bottom land. The tributaries of the Tar on the southern side are separated by wide tracts of nearly level oak uplands, and are bordered by extensive bottoms. This portion of the county is also less broken than the northern. The agriculture of the county is divided between the production of cotton, tobacco, and the cereals; but the vine and the peach flourish, especially in the northern and western sections lying within the hill country. The western border of the county rises to an elevation of 500 feet, so that there is abundant water-power developed by the fall of its numerous streams, many of which leave its territory at an elevation of less than 200 feet. Gold mining has been a profitable industry in the southern corner of the county and the neighboring parts of Halifax, Nash, and Franklin.

Of the county area, 25.84 per cent. is tilled land, of which 25.76 per cent. is cultivated in cotton. Transportation to market is furnished by railroad to Raleigh, Norfolk, and New York.

FRANKLIN.

Population: 20,829.—White, 9,476; colored, 11,353.

Area: 526 square miles.—Woodland, 146,604 acres.

Tilled lands: 87,492 acres.—Area planted in cotton, 30,274 acres; in tobacco, 118 acres; in corn, 32,642 acres; in wheat, 8,362 acres; in oats, 5,560 acres.

Cotton production: 12,938 bales; average cotton product per acre, 0.43 bale, 609 pounds seed-cotton, or 203 pounds cotton lint.

Franklin county lies south of Warren, and corresponds very nearly in all its agricultural and topographical features with the description of that county. The eastern, and especially the southeastern sections contain a considerable proportion of long-leaf pine as a constituent of the forests. This county is drained by the Tar river and its tributaries. The middle portion belongs to the region of oak and pine gravelly and sandy hills, and the western end rises into the oak uplands. The large cotton product of this county is of recent date, but here and in the adjoining counties it has greatly increased in the last dozen years. The western half is largely devoted to the culture of tobacco. Of the county area, 25.99 per cent. is tilled land, of which 34.60 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF BLAIR BURWELL, OF LOUISBURG.

The kinds of soils cultivated in cotton are as follows: (1) Sandy soil, with yellow-clay subsoil; (2) sandy soil, with red-clay subsoil; (3) black sandy soil, with close black subsoil.

The chief soil is the *sandy*, which forms about two-thirds of the land in this region, and is the leading soil in the county, with now and then soil No. 2 in the northern part of the county and occasionally soil No. 3 in the east and south. Its chief natural timber is short-leaf pine, with some long-leaf pine in the southeast. The average thickness of the surface soil before its color changes is from 3 to 6 inches. Cotton and corn are the chief crops, but the soil seems best adapted to cotton, which occupies about one-third of the cultivated acreage. The plant is most productive at 2½ feet, but reaches from 1½ to 3½ feet. Wet weather in June or July makes it run to weed, and topping succeeds partially in making it boll. Fresh land produces 500 pounds of seed-cotton per acre, 1,425 pounds making a 475-pound bale, which, when clean, rates in the market as middling. After three years' cultivation the yield is from 400 to 600 pounds per acre, and 1,425 pounds make a bale, which rates the same as the fresh. Wire- and crab-grass are most troublesome. About one-third of the land originally cultivated now lies turned out, but when again taken in it produces a fair yield. It gullies readily on the slopes, but no serious damage is done. The valleys are often injured by the washings of the uplands, and efforts have been made, with fair success, to check the damage by horizontalizing.

Cotton shipments are made by rail to Norfolk and Raleigh, and the rates of freight per bale are to Norfolk \$2 25, and to Raleigh 75 cents.

GRANVILLE.

Population: 31,286.—White, 13,603; colored, 17,683.

Area: 695 square miles.—Woodland, 161,089 acres.

Tilled lands: 145,036 acres.—Area planted in cotton, 6,559 acres; in tobacco, 8,941 acres; in corn, 42,608 acres; in wheat, 14,428 acres; in oats, 14,344 acres.

Cotton production: 2,535 bales; average cotton product per acre, 0.39 bale, 552 pounds seed-cotton, or 184 pounds cotton lint.

Granville county lies on the Virginia border west of the two preceding counties, and is drained partly toward the north by the tributaries of the Roanoke and partly (in its middle region) by the Tar, and in its southern portions by the Neuse. In its central and higher portions, where it is 500 feet above tide, it is comparatively level and rolling; and has, for the most part, a gray gravelly loam soil, with here and there small tracts of red clay. Among the most productive soils is a level body of oak and hickory land in the northern section with a dark gravelly-loam soil. Smaller tracts of similar character occur near the middle, and also on the southern border. The southern portion of the county, along the divide between the waters of the Tar and Neuse rivers, is another comparatively level bench of land, belonging mainly to the class of gray sandy loams, derived in large part from the underlying Triassic rocks (red sandstone). These alternate with gray gravelly loams. The forests are of oaks, hickory, and dogwood, intermingled with short-leaf pine. The principal agricultural product of this county is the gold-leaf tobacco, which is the largest crop in the state—more than 4,500,000 pounds.

The gray and light-colored granite soils of the eastern, middle, and western sections, as well as the last-named (Triassic) soils, are noted for the high grade of tobacco which they produce. This is also a large grain-growing county, its aggregate reaching nearly 750,000 bushels. Of the county area 32.61 per cent. is under tillage, of which 4.52 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORTS OF J. W. HUNTER, OF KITTRELL, AND S. P. J. HARRIS, OF HENDERSON.

The uplands are rolling, partly sandy and partly mulatto, and the soil is generally uniform, with no great change of soil or surface in the southern part. The springs are generally late and frosts early. The former prevents planting as early as we would like, and the latter often cuts off the yield sometimes as much as 25 per cent.; but otherwise our climate is good for the growth of cotton.

The soils cultivated in cotton are, first, a light sandy and gravelly soil; second, mulatto and red lands; and third, a red, stiff clay. The chief soil is the *sandy soil*, about one-half of the lands being of this kind. Its natural timber is pine, oak, hickory, gum, and black-jack. The soil varies from a fine sandy to a gravelly loam of a gray color, and has a depth of 6 inches. The subsoil is mostly a red, firm clay, which mixes well with the surface when plowed deeply. The chief crops are tobacco, cotton, wheat, and oats, but the soil is apparently best adapted to the production of tobacco and wheat.

In the year 1869 one-half of the land was in cotton, but in 1879 only one-eighth. The plant generally attains a height of 3 feet, but is most productive when 2 feet high. It tends to run to weed in very wet seasons, and topping is resorted to as a preventive. Fresh-land staple rates in the market as middling. The most troublesome weeds are crab-grass, hog-weed, and water-weed. Perhaps about one-fourth of such land now lies turned out, and these are now the most valuable for bright tobacco; but when again taken into cultivation it will do finely.

The *mulatto or light-red land* constitutes but a small proportion of the land in this region. Its color is a brown mahogany, and it has a red-clay subsoil, underlaid at 2 feet by rock. The *red stiff and pipe clay*, extending chiefly around Oxford, is timbered with oak, hickory, and black-jack, and is best adapted to tobacco, wheat, and grapes.

Cotton shipments are made by railroad to Norfolk and Raleigh. Rates of freight per bale are: to Norfolk, \$2 65; to Raleigh, \$1 25.

WAKE.

Population: 47,939.—White, 24,289; colored, 23,650.

Area: 932 square miles.—Woodland, 240,004 acres.

Tilled lands: 156,899 acres.—Area planted in cotton, 59,916 acres; in tobacco, 230 acres; in corn, 53,172 acres; in wheat, 14,783 acres; in rye, 211 acres; in oats, 13,948 acres.

Cotton production: 30,115 bales; average cotton product per acre, 0.50 bale, 717 pounds seed-cotton, or 239 pounds cotton lint.

Wake county, in which the capital of the state is situated, is one of the largest counties in the state, and shows the largest product of cotton. It is drained by the tributaries of the Neuse, and lies on the eastern margin of the oak uplands, its southern and eastern sections partaking of the agricultural features of the oak and pine gravelly hills, the forests being made up of long-leaf and short-leaf pines, oaks, hickories, dogwoods, etc. The northern portion of the county, as well as the western, is quite hilly and broken in surface, especially along the streams, and the soils are predominantly gray and yellow sandy and gravelly loams, with occasional areas of red-clay soils. Cotton is the chief crop of the county, but the northwestern section adds to this industry the production of tobacco. The culture of corn is also a large feature in its agriculture, and in this crop Wake also stands first, exceeding 600,000 bushels, which, with the small grains added, would nearly reach 800,000 bushels. In elevation and surface features Wake resembles the counties last described, the levels ranging between 300 and 500 feet above the sea.

The product of cotton has greatly increased in this county (more than fourfold), as well as throughout this region and the state, in the last decade, and the fact is mainly due here, as elsewhere, to the increased consumption of commercial fertilizers. Of the county area, 26.30 per cent. is tilled land, of which 38.19 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF O. W. SHAFFER, OF RALEIGH.

The kinds of soils cultivated in cotton are: (1) mulatto or chocolate land, a very deep red clayey loam; (2) sandy soil and sandy loam, light and easy to till, but not rich; (3) clay with sand and mica. The chief soil is the "*mulatto lands*", and the proportion of lands of this kind in this region is very small, say 1 in 50, but is much greater in other townships. Its timber is pine, oak, poplar, maple, elm, hickory,

cedar, sweet and black gum, and dogwood. The soil is a heavy clay loam, which grows darker with cultivation and manure. The leading crops are cotton, corn, oats, wheat, cow-pease, etc. That portion planted in cotton forms at least one-half of all the lands in cultivation, and attains a height of from 3 to 3½ feet, the latter being most productive if the season is favorable and long; but it inclines to run to weed in warm, wet weather and on very rich land.

Fresh land produces 800 pounds of seed-cotton per acre, 1,425 pounds being needed for a bale, which, when clean, rates in the market as middling. After six years' cultivation the production is from 400 to 500 pounds per acre, from 1,425 to 1,660 pounds being needed for a bale, and the staple is shorter and lighter than that from fresh land. June grass is most troublesome. The valleys are injured by the washings of the uplands, and efforts are made to check the damage by hillside surface ditches, with very good success.

The *light sandy loam* occupies two-thirds of the lands, three-fourths of which is planted in cotton. This soil, which extends all over the county, is sometimes underlaid with a clay subsoil at from 3 to 8 inches, and can be properly described as a whitish gray to brown fine sandy loam. Its natural timber is pine, poplar, maple, scrub oaks, elm, and gum. The subsoil is heavier than the surface soil, and is a clay mixed with sand; it is best adapted to cotton and pease. Cotton grows to a height of from 2 to 2½ feet, the larger being the more productive in good seasons. Fresh land produces 400 pounds of seed-cotton per acre, and 1,660 pounds make a bale, which rates as middling.

The *clay lands* extend throughout the county in patches, and the timber is the same as that of soil No. 1. The color varies almost indefinitely. The average thickness of the surface soil is from 4 to 6 inches.

Cotton shipments are made by wagon to Raleigh.

ORANGE.

Population: 23,698.—White, 14,555; colored, 9,143.

Area: 652 square miles.—Woodland, 130,549 acres.

Tilled lands: 82,667 acres.—Area planted in cotton, 5,290 acres; in tobacco, 2,323 acres; in corn, 28,542 acres; in wheat, 18,358 acres; in oats, 12,243 acres.

Cotton production: 1,919 bales; average cotton product per acre, 0.36 bale, 516 pounds seed-cotton, or 172 pounds cotton lint.

Cotton is beginning to enter largely into the agricultural interests of Orange county, and the product now is five times as large as it was in 1870. The upper half of this county is devoted, in large part, to the culture of tobacco, and the whole of it to the production of grain crops, of which the aggregate exceeds 550,000 bushels. It is traversed in a northeast and southwest direction through its middle region by chains of slate hills. Its levels lie between 400 and 800 feet above sea-level, the average elevation being about that of the state, viz, 640 feet. Its southeastern section is drained by the tributaries of the Cape Fear river, and has a low, undulating tract of land, with gray and yellow sandy and clay loam soils and mixed oak and pine forests. The larger part of this county is characterized by oak forests and red-clay soils, with an intermixture in the poorer sections and on the slaty hills of short-leaf pine. The region described as slate hills is characterized mainly by a gray gravelly loam soil. Of the county area, 19.81 per cent. is under tillage, of which 6.40 per cent. is devoted to cotton. The university is located in this county.

ABSTRACT OF THE REPORT OF C. W. JOHNSTON, OF CHAPEL HILL.

The principal soil is sandy, and occupies one-fourth of the lands of this county with an average thickness of 5 inches. The growth is oak and hickory. The chief crops are corn, wheat, and oats. The proportion of cotton planted is not more than one-sixth; its usual height is 3 feet, and it produces best at 2½ feet, but runs to weed from too much wet. The product of seed-cotton on fresh land is from 600 to 800 pounds, and 1,660 pounds make a bale. Crab-grass is the most troublesome pest. About one-half of such land originally cultivated lies turned out, but when taken into cultivation it produces well if manured. This land does not easily wash.

Shipments are made by rail to Raleigh.

CHATHAM.

Population: 23,453.—White, 15,500; colored, 7,953.

Area: 826 square miles.—Woodland, 212,212 acres.

Tilled lands: 119,185 acres.—Area planted in cotton, 13,478 acres; in tobacco, 141 acres; in corn, 43,087 acres; in wheat, 28,930 acres; in oats, 19,861 acres.

Cotton production: 5,858 bales; average cotton product per acre, 0.43 bale, 618 pounds seed-cotton, or 206 pounds cotton lint.

Chatham county lies contiguous to the long-leaf pine belt, and includes a small strip of it along the southern edge. It is drained by the waters of the Cape Fear river, the main affluents of which unite near its southeast corner. The principal of these, Deep river, has on both sides extensive bottom lands, covered with oak and short-leaf pine forests, which are very productive. A large part of its surface is hilly and broken, especially near the rivers, and in the middle and northeastern sections these hills rise to an elevation of from 660 to 700 feet above the sea, attaining in a few cases the elevation and designation of small mountains; the average elevation is 500 feet. The soils are for the most part those of the oak uplands, generally sandy, gray to yellow loams, alternating here and there with belts of red-clay soil. Toward the southern borders occur the sandy and gravelly oak and pine hills. With the exceptions noted, the forests consist mostly of oak, hickory, etc. Along the eastern margin of the county is a wide, level tract of oak and pine lands, with a gray clay loam soil of Triassic origin. Only a minor portion of Chatham, in the southern and eastern parts, is devoted to the culture of cotton, grain crops constituting its predominant agricultural interest. Its corn product exceeds 550,000 bushels, and the total grain crop exceeds 800,000 bushels. Its facilities for manufacturing are unsurpassed. Two large and two other considerable rivers cross its territory with a fall of from 300 to 400 feet, and develop a force of more than 40,000 horse-power. Of the county area, 22.55 per cent. is tilled land, of which 11.30 per cent. is cultivated in cotton.

Facilities for transportation are ample, both by railway and river.

ABSTRACT OF THE REPORT OF R. J. POWELL, OF PITTSBORO'.

East of the Haw river the lands are generally sandy, with some red clay. West of the river the gray, gravelly lands are suited best for cotton; there is but little sandy land on the west side. Cotton matures much better where there is sand in the soil, and is rarely planted in lowlands. In damp locations it is subject to rust; hence the entire cotton crop is raised on rolling land. The stiff red-clay soil produces a huge growth of stalk, but it continues green till checked by frost, and does not mature the fruit; at least one-third of the cotton fruit on such soil never matures.

The dark sandy loam east of the Haw river extends to the Orange and Wake county-lines, covering about one-third of the county, and the river is the dividing line between the stiff clay and sandy loam lands. The timber is oaks, hickory, dogwood, and pine. The soil is a whitish-gray and blackish, fine sandy and coarse sandy and gravelly loam, having a thickness of from 3 to 6 inches, and a subsoil of tough red and yellow clay. The chief crops are cotton on the east side and cereals and grass on the west side of the Haw river. Cotton usually attains a height of from 2 to 5 feet, but is most productive when from 3 to 3½ feet high. It is inclined to run to weed when too thick in the drill in very wet seasons, and thinning and topping restrain it and favor bolling. Fresh land produces (without fertilizers) 400 pounds of seed-cotton per acre, and 1,425 pounds will make a 475-pound bale, which, when clean, rates as middling in the market. After three years' cultivation the product is 150 pounds per acre, 1,545 pounds making a bale, but the staple does not rate as good as that from fresh land. Crab-grass is the most troublesome weed. About one-fourth of the land once in cultivation now lies turned out. Old-field pines and cedars reclaim our lands very fast when not so rolling as to wash away, and in a few years they produce as well as ever.

Cotton shipments are made in October, by wagon, to Raleigh.

The report of Mr. J. F. Rives, of Pedlar's Hill, agrees in the main with the above. He mentions, however, among the chief crops, besides cotton and corn, sorghum, wheat, oats, and potatoes, and among the troublesome weeds Spanish needles and hog-weed. He considers shallow cultivation favorable to bolling.

Mr. J. W. Scott describes one-half the lands in his township—Haywood, about the forks of Cape Fear river—as a sandy, gravelly loam, having a growth of short-leaf pine, oaks, hickory, gum, poplar, elm, etc., about one-quarter of which is planted in cotton. The chief crops are cotton, corn, wheat, oats, pease, sorghum, peanuts, and tobacco. Cotton reaches a height of from 3 to 6 feet, and runs to weed in wet summers on rich clay soils, but is restrained by early topping. The product of seed-cotton per acre on fresh land is from 600 to 1,200 pounds, from 1,425 to 1,545 pounds making a bale of lint, early pickings grading as middling. After 3 or 5 years the yield is from 300 to 500 pounds per acre, the same amount being required for a bale, and the staple being as good as that from fresh land.

MONTGOMERY.

Population: 9,374.—White, 6,857; colored, 2,517.

Area: 489 square miles.—Woodland, 179,473 acres.

Tilled lands: 46,209 acres.—Area planted in cotton, 6,519 acres; in tobacco, 54 acres; in corn, 18,090 acres; in wheat, 9,197 acres; in oats, 7,852 acres.

Cotton production: 2,989 bales; average cotton product per acre, 0.46 bale, 654 pounds seed-cotton, or 218 pounds cotton lint.

In its topographical features Montgomery county may be described in nearly the same terms as the Chatham. Several low chains of mountains or high ranges of slate hills cross its territory in a direction nearly north and south. The county is drained by the Yadkin river and two of its chief tributaries, the Uharie and Little rivers. Its territory, therefore, is quite broken in surface. Its soils are mostly sandy and gravelly loams, with occasional tracts of red clays. Along its eastern border, and particularly in its southeastern corner, there are large bodies of valuable timber, as it here touches the long-leaf pine belt; the lands are of the common character of this border region, and its soils are generally lean. Cotton is quite a subordinate interest in comparison with grains. Of the county area, 14.77 per cent. is tilled land, of which 14.11 per cent. is cultivated in cotton. The water-power of its rivers is very great, the Yadkin having a fall within the county of more than 200 feet and a force per foot of above 350 horse-power. There are many valuable gold mines, both vein and placer.

ANSON.

Population: 17,994.—White, 8,790; colored, 9,204.

Area: 545 square miles.—Woodland, 149,000 acres.

Tilled lands: 88,293 acres.—Area planted in cotton, 28,296 acres; in corn, 29,121 acres; in wheat, 5,969 acres; in oats, 8,999 acres.

Cotton production: 11,857 bales; average cotton product per acre, 0.42 bale, 597 pounds seed-cotton, or 199 pounds cotton lint.

Anson county lies on the southern border of the state, and is bounded on the east by the Pedee river. About one-third of its territory, in the southeastern portion, belongs to the long-leaf pine belt, with its characteristic soils and forests. The northwestern and northern sections of the county consist of slate soils (gray, gravelly clays), occupied by forests of oak, short-leaf pine, hickory, dogwood, etc. The river hills near the Pedee have a sandy and gravelly loam, becoming more red and clayey on the lower slopes. There lies across the middle, in a northeast and southwest direction, a low, nearly level tract, 5 or 6 miles wide, of brown, yellow, and gray sandy and clay loam soils, derived from the clays and sandstones of the Trias. These lands are naturally quite productive, but are much worn, and have been devoted mainly to the culture of cotton, which is the most important industry of the county, although the corn crops are quite large. Of the county area, 25.31 per cent. is under tillage, of which 32.05 per cent. is in cotton.

ABSTRACT OF THE REPORT OF W. A. LILES, OF WADESBORO'.

The chief soil cultivated in cotton is a *sandy soil*, which occupies three-fifths of the lands in the region, and is whitish gray and brown in color. Its timber is pine, oak, hickory, black-jack, and dogwood. The thickness of the surface soil on uplands is 4 inches; on river or creek bottoms from 2 to 5 feet. The subsoil is a purple and red clay, quite impervious, and yellow porous clay.

The chief crops are cotton, corn, oats, and wheat. The soil is best adapted to oats; but the proportion of cotton planted comprises two-fifths of the cultivated lands, and attains a height of from 2 to 5 feet, but is most productive at 3 feet. In warm, wet weather and rich bottom lands it is inclined to run to weed, and fertilizing favors bolling.

Fresh land produces 800 pounds of seed-cotton per acre, and 1,425 pounds will make a bale. After ten years' cultivation the product is 500 pounds per acre, and 1,425 pounds make a bale, which compares favorably with the staple from fresh land. Crab-grass is the most troublesome weed. About one-fourth of the land once in cultivation now lies turned out. The soil on the slopes readily washes or gullies, and the valleys are injured by the washings from the uplands, often seriously.

The *bottom lands*, of which one-fifth is cultivated in cotton, is buff, yellow, brown, or mahogany in color, and is late, cold, ill-drained, and best adapted to corn. Its natural timber is oak, gums, poplar, and hickory. The cotton-plant grows from 4 to 6 feet in height, and is apt to run to weed in warm, damp weather; phosphate manure favors bolling. Fresh land produces 1,500 pounds of seed-cotton per acre, and 1,485 pounds will make a 475-pound bale. After ten years' cultivation the product is 1,000 pounds per acre, 1,425 pounds making a bale, and the staple compares favorably with that from fresh land. About one-twentieth of the land once in cultivation now lies turned out, but when again taken in it does well.

The *slaty soil*, of which one-fourth is planted in cotton, occupies about three-tenths of all the land in this region; but the soil is best adapted to wheat and oats. Its natural timber is pine and post oak. The height attained by cotton on this land is 2 feet. The production on fresh land is 500 pounds of seed-cotton per acre; after ten years' cultivation, 300 pounds per acre. About one-third of such land once cultivated now lies turned out, and when again taken in it does poorly.

Cotton shipments are made all the season by rail to Wilmington and Charleston; rates of freight per bale, \$1 60

UNION.

Population: 18,056.—White, 13,520; colored, 4,536.

Area: 557 square miles.—Woodland, 176,245 acres.

Tilled lands: 83,913 acres.—Area planted in cotton, 19,090 acres; in corn, 28,877 acres; in wheat, 12,464 acres; in oats, 14,357 acres.

Cotton production: 8,336 bales; average cotton product per acre, 0.44 bale, 621 pounds seed-cotton, or 207 pounds cotton lint.

The southern portion of Union county, which lies on the South Carolina border, is penetrated to a distance of several miles by sinuses of long-leaf pine (sandy lands) on the level-backed divides between the streams. This portion of the county is drained southward into the Pedee through South Carolina.

The soils of the larger part of the county are of a slaty origin, and are gray gravelly and sandy for the most part, with occasional areas of red clays. The forests are mixed pine and oak, hickory, etc. The soils of a narrow belt along the west side are granitic. The cotton product belongs mainly to the southern half, the northern portion being devoted to small grains, of which it produces large crops—a total of nearly 500,000 bushels.

Of the county area, 23.54 per cent. is tilled land, of which 22.75 per cent. is cultivated in cotton.

ABSTRACT OF THE REPORT OF H. M. HOUSTON, OF MONROE.

The upland soils vary greatly. The soil chiefly cultivated in cotton is the *mulatto (black-jack) soil*, which occupies one-third of the lands in this region, extending in patches through the county in a direction northeast by southwest, and is timbered with pine, Spanish oak, and black-jack. Three-fourths of this soil is planted in cotton. The average thickness of the surface soil is 2 feet, when it changes into the subsoil, which is a tough, dark-red clay. The chief crops are cotton, corn, wheat, and oats, but the soil is best adapted to cotton, which usually attains a height of 3 feet, and will run to weed in wet, warm weather, topping and fertilizers being used to restrain this tendency. Fresh land produces 1,200 pounds of seed-cotton per acre, 1,425 pounds being needed to make a bale of lint, the staple rating as strict good middling. After ten years' cultivation the product is very little less, and the staple rates the same. Hog-weed is most troublesome. One-fourth of the land once cultivated now lies turned out. Considerable damage is done by wash or gullies on the slopes, and efforts have been made to check this by hillside ditching with good success.

Black slate gravel soil also occupies about one-third of the lands in patches of from 5 to 100 acres, and is timbered with pine, hickory, and oak. The thickness of the surface soil is from 6 to 12 inches, and has a subsoil of red clay, underlaid by a blue slate rock. The soil is best adapted to cotton, and one-fourth of it is planted in this crop. Fresh land produces from 600 to 800 pounds of seed-cotton per acre, 1,425 pounds making a 475-pound bale of lint, which, when clean, rates as good strict middling. After ten years' cultivation the product ranges from 400 to 600 pounds of seed-cotton per acre. About one-fifth of land once cultivated now lies turned out; but when again taken in it does well the first year in wheat and the second year in cotton.

The *sandy soil* occupies one-third of the lands in this region, running through the county northeast and southwest in streaks, two-thirds being planted in cotton. The natural timber is pine, hickory, and black-jack.

Cotton shipments are made in October, November, and December, by rail, to Wilmington, Norfolk, New York, and Providence at \$2 25 per bale.

STANLEY.

Population: 10,505.—White, 9,166; colored, 1,339.

Area: 432 square miles.—Woodland, 119,148 acres.

Tilled lands: 58,628 acres.—Area planted in cotton, 5,878 acres; in corn, 22,426 acres; in wheat, 16,465 acres; in oats, 10,975 acres.

Cotton production: 2,475 bales; average cotton product per acre, 0.42 bale, 600 pounds seed-cotton, or 200 pounds cotton lint.

Stanley county lies on the west side of the Yadkin river, and is bounded on the south by the Rocky river, one of its largest tributaries. Its soils are derived from the clay and chlorite slates of the great central slate belt of the state, and are gray and gravelly loams or red clays, according as the underlying rock is of the former or of the latter description. The forests are of oak and short-leaf pine. Its surface is quite broken near the rivers. The southwestern corner of the county is characterized by broad and comparatively level tracts of gravelly land, covered with extensive short-leaf pine forests, with a subordinate growth of oaks. The cotton product is of about equal value with that of the grains, of which the total exceeds 400,000 bushels. The slate lands of this region produce heavier wheat than any other soils, reaching 65 and even 70 pounds to the bushel. Of the county area, 21.21 per cent. is tilled land, of which 10.02 per cent. is cultivated in cotton.

Transportation is by wagon to railroads of the adjacent counties.

DAVIDSON.

Population: 20,333.—White, 16,341; colored, 3,992.

Area: 564 square miles.—Woodland, 142,673 acres.

Tilled lands: 113,314 acres.—Area planted in cotton, 3,779 acres; in tobacco, 484 acres; in corn, 36,983 acres; in wheat, 32,195 acres; in oats, 16,924 acres.

Cotton production: 1,553 bales; average cotton product per acre, 0.41 bale, 585 pounds seed-cotton, or 195 pounds cotton lint.

This county lies midway of the breadth of the state and of the midland division, and on the northern border of the cotton belt. The average elevation is about 800 feet above sea-level—the northern end 1,000 and the southwestern 600 feet—but is interrupted by ranges of hills which are 900 feet in height and upward. The county is bounded on the west by the tortuous course of the Yadkin river, whose numerous tributaries drain almost its entire surface, one of which, Abbott's creek, traverses its middle section from north to south, while a multitude of smaller streams flow in a generally southwest course into the river. Both the river itself and these tributaries are generally bordered by tracts of bottom lands with a rich alluvial soil, covered by heavy forests of oak, largely white oak. There are considerable tracts of red-clay soil scattered through various portions of the county, which are covered with heavy oak forests. The eastern and northern margins, which lie along the elevated divides and swells between the greater rivers, contain mixed oak and pine forests, and have a soil which is generally a gray and yellow gravelly or sandy loam. A clay subsoil is found throughout the county. The cotton product of Davidson county is small, and is limited to its southern end. Its wheat crop is the largest in the state, and its total grain product is only less than that of Rowan, amounting to 850,000 bushels. The southern half of the county lies within the great gold belt, and numerous mines of gold, and quite a number of copper and silver, have been opened. The slate hills of the south end are notable for their deposits of gold gravel, or placers. Of the county area, 31.39 per cent. is tilled land, of which only 3.33 per cent. is cultivated in cotton.

Transportation is by rail to Charleston, Norfolk, and New York.

ROWAN.

Population: 19,965.—White, 13,621; colored, 6,344.

Area: 482 square miles.—Woodland, 117,870 acres.

Tilled lands: 94,378 acres.—Area planted in cotton, 10,645 acres; in tobacco, 216 acres; in corn, 38,963 acres; in wheat, 24,195 acres; in rye, 253 acres; in oats, 17,751 acres.

Cotton production: 4,381 bales; average cotton product per acre, 0.41 bale, 585 pounds seed-cotton, or 195 pounds cotton lint.

Rowan county lies on the west bank of the Yadkin river and south of its principal tributary, the South Yadkin, and resembles very closely in its agricultural and topographical features the county of Davidson, above described. Its entire surface is drained by the tributaries of the Yadkin, which traverse its territory in a northeasterly course. Its middle and northern sections, which lie for the most part above the level of 800 feet, rising at one point above 1,000 feet, are characterized by an abundance of red-clay soils and heavy oak forests, interspersed with hickory, walnut, etc., only the higher parts of the water-sheds between the streams showing any growth of pine (short-leaf), and having gray and yellow sandy loam soils. The southeastern corner of the county, amounting to one-third of its territory, is quite broken, and is traversed by low ranges of mountains or high hills, which rise in places to a level of a thousand feet and more above the sea. These consist geologically, for the most part, of ledges of granite. The hills of this region have a light gray and yellow sandy loam soil.

The culture of cotton has greatly increased in the past decade, but still occupies a secondary place in the agriculture of the county, most of its territory being better adapted to the growth of corn and small grains, of which the total is the largest in the state, being more than 875,000 bushels. The upper portion produces also a considerable quantity of tobacco. Of the county area, 30.59 per cent. is tilled land, of which 12.34 per cent. is cultivated in cotton. There are many gold mines in this county, mostly in the southern part, and several copper veins.

ABSTRACT OF THE REPORT OF J. G. RAMSAY, OF SCOTCH IRELAND.

The kinds of soil cultivated in cotton are the red clay and sandy soils, and most of the planting is done in a mixture of these soils when practicable. About one-third of the lands in this region are *sandy*, and the natural growth is pine, oak, hickory, ash, elm, maple, walnut, dogwood, black-jack, sweet and black gum, and sourwood. The average thickness of the surface soil is 6 inches, and it is difficult to till in dry seasons. The principal crops are corn, wheat, oats, rye, cotton, and tobacco, but the soil is best adapted to wheat, corn, and oats. About one-twentieth of the tilled land is planted in cotton, which usually grows to a height of 3 feet, and if higher is not so productive. It inclines to run to weed on rich, wet land, not fertilized. Fresh land produces from 500 to 600 pounds of seed-cotton per acre, 1,425 pounds making a bale of lint, the staple rating, when clean, about second rate. Crab-grass is most troublesome. Serious damage is done by washing or gullies on the slopes.

Cotton shipments are made in October, November, December, and January, by rail, to Salisbury at 50 cents per bale.

CABARRUS.

Population: 14,964.—White, 9,849; colored, 5,115.

Area: 370 square miles.—Woodland, 86,297 acres.

Tilled lands: 80,439 acres.—Area planted in cotton, 19,224 acres; in corn, 26,831 acres; in wheat, 17,550 acres; in oats, 7,592 acres.

Cotton production: 7,467 bales; average cotton product per acre, 0.39 bale, 552 pounds seed-cotton, or 184 pounds cotton lint.

Cabarrus resembles Rowan county in its general features, both topographical and agricultural. It is drained by the upper waters of the Rocky river, one of the chief affluents of the Yadkin, and abounds in water-courses, which traverse its territory from northwest to southeast, dividing it into narrow zones or flattish swells, the higher parts of which are comparatively level and are covered with a growth of oaks and pines and have a characteristic gray to yellow loam soil, while along the borders of the streams there are numerous and often extensive tracts of alluvial bottom lands, which, as well as large tracts of red clay and dark gravelly loam soils, are covered with heavy forests of oak, hickory, walnut, poplar, maple, etc. Along the eastern margin of the county lies a narrow belt of a few miles in breadth of slate hill-land, in the forests of which the short-leaf pine predominates. The soils of this tract are much less productive than the average of the county. Cotton enters as a large element into the agriculture of this county, and divides almost equally the attention of its population with grain crops, of which it produces more than half a million bushels. Of the county area, 33.97 per cent is tilled land, of which 23.90 per cent. is cultivated in cotton. Gold and copper mining also come in for a considerable share of attention.

ABSTRACT OF THE REPORT OF JOHN M'DONALD, OF CONCORD.

The upland soil greatly varies, and there is no continuous extent of any one variety. No lowlands in this region are cultivated in cotton. The best cotton lands consist of a more or less *fine granitic soil*. This soil is of a loose, loamy character, and is easily worked. About 20 per cent. of the land of the county is of this character, and is found in all parts of it in limited areas. Its natural timber growth is hickory, the various oaks, some walnut, short-leaf pine, etc. The soil is a whitish-gray fine sandy loam to the depth of 6 inches, with a subsoil of stiff red and sometimes yellow clay, not altogether impervious.

The chief crops are cotton, corn, wheat, and oats, and the soil is well adapted to all of these on the uplands, while on the lowlands it is best adapted to corn. The proportion of cotton planted comprises two-thirds of the cultivated lands. It is most productive when 3 feet high, and is inclined to run to weed in wet seasons or in a wet spell preceded by a drought, but this tendency is restrained by deep cultivation and underdraining by thoroughly subsoiling. Fresh lands produce 1,000 pounds of seed-cotton per acre, and 1,425 pounds will make a 475-pound bale of lint, which rates in the market as good middling. After five years' cultivation the product ranges from 500 to 700 pounds per acre, about the same amount of seed-cotton being needed for a bale; but there is no difference in the staple. Crab-grass and butter-weed are the most troublesome pests. About 20 per cent. of the land once in cultivation now lies turned out; it improves by this, and if kept from washing and the old field pine allowed to grow up the yield will nearly equal that of fresh land. Very little is done to prevent washing on the slopes, except by hillside ditching, which, if intelligently done, proves effective.

The *stiff mulatto-colored soil* is probably the result of the decomposition of the same kind of rock as the granite soils, but with a larger percentage of clay; consequently, it does not wash so easily, and is more retentive of plant-food, but not so easy to work. About 25 per cent. of the land in this region is of this kind, one-fourth being planted in cotton. The surface soil is a heavy clay loam of a mahogany color to the depth of 12 inches, with a subsoil of deep red clay; it is best adapted to wheat, cotton, and corn. Fresh land produces from 900 to 1,000 pounds of seed-cotton per acre, 1,425 pounds making a bale, which, when clean, rates in the market as middling. After five years' cultivation the product is about 500 pounds per acre.

The *heavy black soil*, with pipe-clay subsoil, commonly called *black-jack land*, occupies about 20 per cent. of the land in this region, and is timbered with black-jack. This soil seems best adapted to corn and wheat. The proportion of cotton planted is one-half, and the product from fresh land is 800 pounds of seed-cotton per acre; the lint rates as middling. Cotton shipments are made to Concord and Charlotte; the rates of freight are 60 cents per hundred-weight.

MECKLENBURG.

Population: 34,175.—White, 17,922; colored, 16,253.

Area: 576 square miles.—Woodland, 115,649 acres.

Tilled lands: 134,028 acres.—Area planted in cotton, 41,343 acres; in corn, 41,285 acres; in wheat, 12,295 acres; in oats, 12,949 acres.

Cotton production: 19,129 bales; average cotton product per acre, 0.46 bale, 660 pounds seed-cotton, or 220 pounds cotton lint.

Mecklenburg county lies on the southern border of the state, and is bounded westward by the Catawba river. The elevation varies between 600 and 900 feet, the average being about 700 above the sea. This is one of the largest and most productive as well as one of the most populous counties in the state. The production of cotton constitutes the principal feature of the agriculture of the entire county, having increased more than threefold in the last ten years; before the war the culture of cotton did not reach northward beyond the middle of the county. A considerable portion of the territory of this county belongs to the class of red clay lands which were originally covered with heavy forests of oak, pine coming in as a constituent of the forests only on the summits of the ridges and divides between the streams, where the soils are gray and yellow sandy loams. The higher portion of the county, which lies along the water-shed between the Yadkin and the Catawba in a north and south direction, belongs, in the main, to the latter class of soils, but has here and there small tracts of red clay. Of the county area, 36.36 per cent. is under tillage, and of this 30.85 per cent. is in cotton. This county shows a large product of cotton, ranking third in this respect; and also produces corn and the small grains on a large scale, aggregating 800,000 bushels. Gold and copper mining are important industries in several sections of the county.

Charlotte being an important railroad center, the county has ample facilities for shipment in every direction.

ABSTRACT OF THE REPORTS OF MESSRS. R. I. M'DOWELL, OF CHARLOTTE, AND WILLIAM E. ARDREY, OF PINEVILLE.

Most uplands are well adapted to the growth of cotton, which matures early, and generally not much is lost by frost. The kinds of soil cultivated in cotton are, first, *gray lands*, which have a large per cent. of sand, and cover one-fourth of the county; next, *mulatto or red lands*, with a red-clay subsoil, which cover over one-half of the county; and last, a *black-jack and post-oak land* with a hard impervious subsoil. The natural timber is oak, hickory, pine, and dogwood. The average thickness of the surface soil is from 4 to 8 inches. The chief crops are cotton, corn, wheat, and oats, but the land is best adapted to cotton, which yields best when 4 feet high, but grows from 2 to 5 feet in height. It is inclined to run to weed when the soil is a rich heavy loam or has much vegetable matter; on most lands phosphates are beneficial. Fresh land produces from 500 to 1,000 pounds of seed-cotton per acre, 1,425 pounds making a bale.

Crab-grass is the only pest dreaded in cultivation. About one-tenth of such land originally cultivated now lies turned out, but is being rapidly put in cultivation; when again taken in it does better than fresh land, especially when aided by fertilizers. The soil on the slopes is apt to wash or gully unless protected by hillside ditches. The valleys are benefited by the washings of the uplands.

IREDELL.

Population: 22,675.—White, 16,752; colored, 5,923.

Area: 595 square miles.—Woodland, 153,039 acres.

Tilled lands: 101,018 acres.—Area planted in cotton, 11,603 acres; in tobacco, 465 acres; in corn, 39,264 acres; in wheat, 17,476 acres; in rye, 359 acres; in oats, 17,488 acres.

Cotton production: 4,657 bales; average cotton product per acre, 0.40 bale, 573 pounds seed-cotton, or 191 pounds cotton lint.

Iredell is a county of rolling uplands, and lies on the waters of the Catawba on the west and of the Yadkin on the east, being mainly drained by the latter. It is divided in a northwesterly and southeasterly direction by the course of the tributary streams into broad, flattish, elevated zones, the summits of which have generally a gray and yellow loam soil, with mixed oak and pine forests and occasional tracts of red clay oak-covered soils, while along the streams, which abound in alluvial bottoms, forests of oak, walnut, hickory, etc., predominate. One of these high swells or divides lies along and quite close to the course of the Catawba river, and has an elevation of 900 feet in its southern portion, rising to 1,000 feet and upward at its northern limit. The average elevation of the county is but little below 1,000 feet above sea-level.

The cotton crop has increased tenfold since 1870, and is confined mainly to the southern half, this form of agriculture having only recently passed beyond the middle of the county. The northern section produces tobacco as its chief market crop, but corn and the small grains occupy the larger portion of the tilled surface of the county, and aggregate more than 800,000 bushels. Of the county area, 26.53 per cent. is tilled land, of which 11.49 per cent. is cultivated in cotton. Transportation is by rail, east, west, and south.

CATAWBA.

Population: 14,946.—White, 12,469; colored, 2,477.

Area: 445 square miles.—Woodland, 110,328 acres.

Tilled lands: 75,350 acres.—Area planted in cotton, 5,175 acres; in tobacco, 49 acres; in corn, 21,248 acres; in wheat, 15,054 acres; in oats, 7,566 acres.

Cotton production: 2,012 bales; average cotton product per acre, 0.39 bale, 555 pounds seed-cotton, or 185 pounds cotton lint.

Catawba county lies on the northern border of the cotton belt and on the margin of the Piedmont division of the state. It is bounded northward and eastward by the Catawba river, and has its western end on the foot-hills of the South mountains. As to its middle, southern, and eastern parts, it resembles the county of Iredell, from which it is separated by the Catawba river. Through the middle region of it, and in a northeast and southwest direction, is a broad belt of oak and hickory forest with a red-clay soil, while that of the western section is a light to yellow sandy loam. The streams of this county, all of which flow into the Catawba, are occasionally bordered by considerable tracts of alluvial lands, and along the course of the Catawba are extensive bottoms. These and the red lands of the county are very productive. In the southeastern corner, as well as along the northwestern border, are mountain spurs which rise to an elevation of 1,500 feet and more above sea-level. A broad, flattish plateau crosses the county in a northwest and southeast direction between these mountain spurs, which, for the most part, is characterized by sandy and gravelly loams, and its oak forests are intermingled with much pine.

The culture of cotton has been introduced into the county since 1870, and has become the money crop. The larger part of its territory is still devoted to grain, of which more than half a million bushels are produced. Tobacco has been added to the list of its products within a few years, nearly half of the county being well adapted to the better grades of this crop. Of the county area, 26.46 per cent. is tilled land, of which 7 per cent. is cultivated in cotton. Transportation is by railroad, east, west, and south.

LINCOLN.

Population: 11,061.—White, 8,180; colored, 2,881.

Area: 295 square miles.—Woodland, 20,293 acres.

Tilled lands: 53,571 acres.—Area planted in cotton, 7,442 acres; in corn, 19,338 acres; in wheat, 10,159 acres; in oats, 6,313 acres.

Cotton production: 2,945 bales; average cotton product per acre, 0.40 bale, 564 pounds seed-cotton, or 188 pounds cotton lint.

Lincoln county lies south of Catawba county and west of the Catawba river, and its features, agricultural and topographical, are those of that county, and may be described in nearly the same terms. Its territory is drained by the parallel courses of the numerous tributaries of the South Fork of the Catawba, which traverses its middle section, and the average elevation is nearly 1,000 feet above sea-level. In its middle portion is a north and south zone several miles in breadth of red-clay soils, with oak and hickory forests. For the rest, its forests are mixed oak and pine, and its soils are gray and yellow gravelly loams. The eastern side of the county is quite hilly near the river.

Only within the last few years has the culture of cotton entered to any considerable extent into the agriculture of this county, and it already holds the leading rank. Of the county area, 28.37 per cent. is under tillage, and of this 13.89 per cent. is in cotton. The manufactures of the county, especially in iron and cotton, have always been considerable.

Railroads cross the county in two directions, furnishing ample means of transportation.

ABSTRACT OF THE REPORT OF WILLIAM A. GRAHAM, OF IRON STATION.

The soils are chiefly of three kinds: 1, clay loam and clay; 2, gray sandy; and 3, piny old fields, chopped off. The leading soil is the *gray sandy*, with red or yellow subsoil, about two-thirds of the lands being of this description. Its natural timber is post oak, hickory, dogwood, and short-leaf pine. The average thickness of the surface soil is 6 inches; the subsoil is a tough red or yellow clay, baking hard, but becoming fine and friable when treated with vegetable matter, and tills easily. The chief crops are corn, cotton, wheat, oats, and tobacco. The soil seems best adapted to cotton, oats, and tobacco, the proportion of cotton planted being one-half. The latter usually attains a height of from 1 to 5 feet, and is most productive at from 2½ to 3 feet. It is inclined to run to weed in a wet August, or when planted on new ground and not manured with bone-dust. Fresh land produces from 400 to 600 pounds of seed-cotton per acre, and from 1,425 to 1,485 pounds are needed for a 475-pound bale. After eight years' cultivation the soil yields 250 pounds per acre, and the staple from stimulated old lands seems to be longer and stronger. Spanish needles and crab-grass are the most troublesome weeds. In the last few years much land turned out has been reclaimed and put in cotton; when again taken in it does well in wheat for a few years, and in oats and cotton as long as manured. The soil readily gullies on the slopes, and in many places serious damage is done. The valleys are to some extent injured by the washings of the uplands, but the proportion of valley to uplands is not considerable. Efforts have been made to check this damage by horizontalizing and hillside ditching, and with good success when properly attended to.

The *clay loam and clay soil* are timbered with large oaks, hickory, and poplar, and the average thickness before it changes into subsoil is from 1 to 5 inches. The subsoil is tough, and contains hard white gravel, underlaid by slate or granite at from 4 to 10 feet. The soil is apparently best adapted to wheat and corn. Cotton is most productive at from 2½ to 3 feet, and in wet weather is apt to run to weed. Fresh land produces 500 pounds of seed-cotton per acre, from 1,425 to 1,485 pounds being needed to make a 475-pound bale. After eight years' cultivation it will yield 200 pounds per acre. The *old pine-fields' soil* is about the same as No. 1.

Cotton on bottom lands being late in starting off in the spring, and growing too late in the fall, the crop is confined almost entirely to the uplands.

Cotton is shipped by wagon to Charlotte, and the rate of freight is \$1 25 for 25 miles.

GASTON.

Population: 14,254.—White, 10,188; colored, 4,066.

Area: 364 square miles.—Woodland, 97,543 acres.

Tilled lands: 59,569 acres.—Area planted in cotton, 10,949 acres; in corn, 24,678 acres; in wheat, 11,566 acres; in oats, 6,699 acres.

Cotton production: 4,588 bales; average cotton product per acre, 0.42 bale, 597 pounds seed-cotton, or 199 pounds cotton lint.

Gaston, a small county, lies on the southern border of the state, and is bounded eastward by the Catawba river, whose tributaries drain its entire surface. In the southern section are several small mountain chains and spurs, the highest of which, King's mountain, reaches an altitude of nearly 1,700 feet above sea-level. Most of the county is quite broken, and partakes of the character of the Piedmont division. It is characterized by mixed forests of oak and pine and by gray and yellow gravelly soils of moderate fertility, with occasional areas of red-clay soils. In the northwestern section are the largest tracts of oak and hickory forests, with their corresponding red-clay soils.

Of the county area, 25.57 per cent. is under tillage, and of this 18.38 per cent. is in cotton. The product of cotton has increased sixfold in the last ten years.

There are many valuable beds of iron ore in the county, and the manufactures of cotton, and formerly of iron, have attained considerable importance. It is one of the oldest iron-manufacturing regions of the south, some of its furnaces dating back nearly one hundred years. In water-power it has superior advantages. It has also several noted gold mines.

ABSTRACT OF THE REPORT OF JASPER STOWE, OF LOWELL.

The soils are numerous, and vary from rich to very poor. Cold weather in late April and May is one terror to the cotton-planter, and frequently frosts in the fall kill the cotton before it matures.

About one-sixth of the cotton land is what is termed "*chincapin*" land. This soil is gray fine sandy, having a subsoil of compact red or yellow clay, and occupies patches of several square miles, forming large and small farms in all sections of the county; its timber is generally a mixed growth of oaks and pines. Cotton and corn are the chief crops, but the soil is best adapted to cotton, two-fifths of the improved land being occupied by this crop. It is most productive when 2½ feet high, and inclines to run to weed in wet seasons, for which we think deep plowing a remedy. Fresh land produces 500 pounds of seed-cotton per acre; and 1,425 pounds will make a 475-pound bale; the grade is always good. Crab-grass is the only pest. The slopes wash or gully very readily, but the damage is not extensive.

The *granite soil* occupies one-seventh of the lands in this region, and extends from northeast to southwest, in places several miles in length and half a mile in width; there are several such ranges in the county. The timber is mostly small hickories, with oaks and

pinus in fair proportion. The soil is a whitish-gray, coarse, sandy, gravelly loam, to the average depth of 5 inches, when it changes into the subsoil, which is tenacious clay, sometimes porous. The former contains hard and soft granitic pebbles, and is only difficult to till in wet seasons. It is best adapted to cotton and oats, three-fifths being the proportion of cotton planted, which grows from 30 to 42 inches high. Fresh land produces from 700 to 1,500 pounds of seed-cotton per acre, and 1,426 pounds will make a 475-pound bale of lint, which rates, when clean, as good middling. No one thinks of cultivating without manuring.

The *hickory or red land* constitutes two-thirds of the region, and is timbered the same as the other soil. The subsoil is generally a stiff, deep-red clay, and the soil is best adapted to corn and wheat, though one-fourth is planted in cotton. Fresh land rarely produces 485 pounds of seed-cotton per acre, and 1,485 pounds is needed for a bale, which rates as low middling.

Cotton shipments are made in November by rail to Charlotte. Rates of freight are from 50 to 75 cents per bale.

CLEAVELAND.

Population: 16,571.—White, 13,700; colored, 2,871.

Area: 464 square miles.—Woodland, 129,115 acres.

Tilled lands: 85,752 acres.—Area planted in cotton, 19,238 acres; in corn, 31,339 acres; in wheat, 11,116 acres; in oats, 10,959 acres.

Cotton production: 6,126 bales; average cotton product per acre, 0.32 bale, 453 pounds seed-cotton, or 151 pounds cotton lint.

Cleveland county is situated on the southern border of the state, and lies westward of Gaston county. Its northern end rests upon the summit of the South mountains, at an elevation of nearly 3,000 feet above sea-level, and its upper half belongs properly to the Piedmont division. It is drained by several large tributaries of the Broad river, which rise in this chain and cross the county southward into South Carolina. Its agricultural and topographical features are very similar to those of Catawba county, to which its territory is contiguous. Its soils consist of alternating tracts of red or reddish clay and gray and yellow gravelly loams (chiefly the latter), and have their corresponding forests of oak and of oak mingled with pine. This county produces cotton throughout its territory even up to the flanks and on the slopes of the South mountains, although this form of agriculture is the growth of a decade, the product having increased twelvefold in that time. The production of grain exceeds 500,000 bushels. Of the county area, 28.88 per cent. is tilled land, of which cotton occupies 22.43 per cent. Gold mining is also a familiar industry, placers being common in the north and vein mines in the south end.

ABSTRACT OF THE REPORT OF J. B. LOGAN, OF SHELBY.

The chief soil cultivated in cotton is a *yellow sandy soil*, which occupies three-fourths of the entire area and extends throughout the county, interspersed with tracts of red-clay land. Its natural timber is pine, hickory, oak, dogwood, poplar, and, in the mountainous part, chestnut, chestnut-oak, locust, etc. The average thickness of the surface soil is 6 inches before its color changes into that of the subsoil, which is harder and heavier than the surface soil. Cotton, corn, wheat, oats, and sorghum are the chief crops, but cotton is planted on one-fourth of the cultivated land, which grows from 2 to 2½ feet in height, and is apt to run to weed when the land is too rich naturally or planted too wide and thinned out too much. Commercial fertilizers and thicker planting are used to restrain this tendency. Fresh land produces from 600 to 1,200 pounds of seed-cotton per acre, 1,600 pounds making a 475-pound bale of lint. After four years' cultivation the product is from 300 to 500 pounds per acre, and about 1,730 pounds are needed for a bale. The lint is not so long or heavy, but probably has a firmer texture.

Rock or pigeon weed and foxtail are the most troublesome weeds. Considerable damage is done in certain localities by the washing or gullying of the slopes, especially in the white sandy land, and efforts are made with great success to prevent the damage by hillside ditching and horizontal plowing.

There are three qualities of land, however: (1) the yellow sandy, (2) the white sandy, and (3) the red rather clayey land; but not much difference in growing cotton, the yellow sandy, if any, being the best. All parts of the county, even the northern or mountainous part, grow cotton tolerably well by fertilizing with guano or phosphates.

Cotton shipments are made, by rail, to Charleston at \$2 25, to Wilmington at \$1 35, and New York at \$2 95 per bale.

The report of E. P. Chambers, of Stice's Shoal, agrees in general with the above. He describes the prevalent soil as gray sandy, having oak and hickory forests, and some pine intermixed, and the subsoil as usually a red and sometimes yellow clay. Two-fifths of the cultivated land is in cotton, but rye is one of the chief crops. Crab-grass is the most troublesome pest. Twenty per cent. of this land lies "turned out".

The second class of land has red-clay soil, embracing more than one-fourth of the land of the region. Its growth is oak and hickory, and the soil is from 8 to 10 inches deep.

A third class is described as *black bottoms*, which embraces less than one-fourth of the lands of the region, and the subsoil is usually a blue clay. Very little of this land is planted in cotton.

RUTHERFORD.

Population: 15,198.—White, 11,910; colored, 3,288.

Area: 520 square miles.—Woodland, 180,192 acres.

Tilled lands: 63,825 acres.—Area planted in cotton, 9,679 acres; in tobacco, 38 acres; in corn, 32,783 acres; in wheat, 8,683 acres; in rye, 689 acres; in oats, 6,166 acres.

Cotton production: 2,079 bales; average cotton product per acre, 0.21 bale, 306 pounds seed-cotton, or 102 pounds cotton lint.

The topographical features of Rutherford county may be described in the same terms as those of Cleveland, which bounds it on the east. Like that, it is traversed from its northern limit, in the South mountains, by the parallel southerly courses of several large tributaries of the Broad river. Its northern half is in many places quite rugged and mountainous (being properly a part of the Piedmont division), and its northwestern corner rests on

some of the summits of the Blue Ridge at an elevation of nearly 4,000 feet. Its soils and its agriculture correspond in all their features to those of Cleaveland county, and its cotton product has increased seventeen-fold since 1870. Gold mining is also an industry of some importance, especially in the northern section, where placers are abundant and extensive on the flanks of the South mountains and in the beds of the streams at their base. Of the county area, 19.18 per cent. is tilled land, of which 15.16 per cent. is planted in cotton.

Transportation is by wagon to the railroads of adjacent counties, and thence to Charlotte, Wilmington, and Charleston.

RANDOLPH.

Population: 20,836.—White, 17,758; colored, 3,078.

Area: 701 square miles.—Woodland, 237,999 acres.

Tilled lands: 91,693 acres.—Area planted in cotton, 595 acres; in tobacco, 45 acres; in corn, 35,338 acres; in wheat, 29,443 acres; in oats, 13,524 acres.

Cotton production: 295 bales; average cotton product per acre, 0.50 bale, 708 pounds seed-cotton, or 236 pounds cotton lint.

The southern portion of Randolph county for a few miles from its border partakes in part of the character of the long-leaf pine belt, but for much the larger part of its territory it belongs strictly to the oak upland region, its surface being quite hilly and broken, and near the western margin there are several small mountains. Through its middle region, from northwest to southeast, is an elevated ridge or divide between the waters of the Deep river and the Yadkin which has an altitude of from 700 to 900 feet above the level of the sea. The western and southern sections of the county are characterized by the occurrence of sharp ridges and hills of slate, with light-gray, sandy, gravelly soil; but the upper portion is much less broken, and consists of broad, flattish swells, which constitute the divides between the upper waters of the Haw, Deep, and Uharie rivers, the latter being one of the tributaries of the Yadkin. The soils of this portion of the county are, for the most part, gray, gravelly loams, alternated here and there with red-clay lands. Cotton is produced in only a small part of the southern half of the county, the production of small grains (700,000 bushels) constituting its principal agricultural feature. Of the county area, 20.44 per cent. is tilled land, of which only 0.65 per cent. is planted in cotton. There are several noted gold mines in this county.

Transportation is furnished by the North Carolina railroad, which crosses the upper corner of the county.

GUILFORD.

Population: 23,585.—White, 16,885; colored, 6,700.

Area: 682 square miles.—Woodland, 108,071 acres.

Tilled lands: 126,722 acres.—Area planted in cotton, 283 acres; in tobacco, 910 acres; in corn, 39,790 acres; in wheat, 27,743 acres; in rye, 354 acres; in oats, 20,774 acres.

Cotton production: 114 bales, average cotton product per acre, 0.40 bale, 573 pounds seed-cotton, or 191 pounds cotton lint.

Guilford county lies in the middle of the midland plateau, and near its highest part, on the water-shed between the Cape Fear and Dan rivers, which crosses its territory nearly midway in a west and east direction at an average elevation of between 800 and 1,000 feet above tide. In its physical characteristics and its agricultural features this county may be taken as a typical average of this region. This elevated swell of land between the water-courses, with its projections at right angles between the main tributaries of the above-mentioned rivers, is characterized by quite a uniform forest growth and soil, both of which may be taken as representative of these features for the major part of the midland division. Its forests consist mainly of oaks of various species and hickory, with a subordinate growth of short-leaf pine scattered quite uniformly over most of its area. Along its river and creek bottoms, which are in many parts of the county extensive, and in the southeastern section of the county—even on the uplands—are heavy forests of oak, intermingled with hickory, walnut, poplar, maple, etc. These lands have generally a reddish-clay loam soil. The soil of the higher and broad-backed ridges and swells is quite uniformly a yellowish sandy and gravelly loam, underlaid by a yellow and red-clay subsoil. The cotton zone barely touches the southern border, the chief crops of the county consisting of grains (of which the aggregate exceeds three-quarters of a million bushels) and tobacco, the product of which is nearly half a million pounds, grown mostly in the northern half of the county. Of the county area, 28.10 per cent. is tilled land, of which only 0.22 per cent. is planted in cotton. Gold, copper, and iron are found in many places, and have been mined on a considerable scale, chiefly before the war.

Transportation is east, west, and north by rail to Richmond, Norfolk, and New York.

ABSTRACT OF THE REPORT OF DR. D. W. C. BENBOW, OF GREENSBORO'.

The principal soil is light sandy; but about one-half the land of the region varies from tract to tract, and comprises sandy and red-clay soils, chiefly the former, and some dark loam. The natural growth is oak, hickory, ash, maple, dogwood, short-leaf pine, etc. The soil has a thickness of 5 inches over a subsoil of stiff clay, gravel, and hard-pan, and the chief crops are wheat, corn, oats, tobacco, and cotton. The height of cotton is usually 2 feet. One-third of this land lies "turned out"; it washes on the slopes, doing serious damage, but the valleys are improved 50 per cent.. Very little effort is made to check damage.

ALAMANOE.

Population: 14,613.—White, 9,997; colored, 4,616.

Area: 445 square miles.—Woodland, 71,239 acres.

Tilled lands: 72,621 acres; area planted in cotton, 211 acres; in tobacco, 1,688 acres; in corn, 24,628 acres; in wheat, 18,661 acres; in oats, 9,618 acres.

Cotton production: 91 bales; average cotton product per acre, 0.43 bale, 615 pounds seed-cotton, or 205 pounds cotton lint.

This county is drained by the upper waters of the Cape Fear river, and one of its principal tributaries, the Haw river, crosses it from the northwestern to the southeastern corner. The soils of this county are largely fertile red-clay loams, with oak and hickory forests. Slate hills, which rise to the elevation of low mountain chains, occupy the southern end of the county, and have oak and pine forests and thin, sandy loam soils. The northern portion consists of alternating tracts of gray sandy loams and red clays. The cotton belt barely touches the southern edge of the county. The upper end is devoted to the production of tobacco, and the whole of it to grain crops, of which the yield is large.

The manufacturing facilities of the county are very great, and, in number of cotton-looms and spindles, Alamance stands first of all the counties in the state. There are also gold deposits, both vein and placer, in the middle and southern sections.

Of the county area, 25.50 per cent. is tilled land, of which 0.29 per cent. is cultivated in cotton. Transportation is east and west by rail.

ABSTRACT OF THE REPORT OF J. A. GRAHAM, OF GRAHAM.

The principal soil is *sandy*, and occupies two-thirds of the lands. A gray chalky soil comprises one-third of the land. The former is in scattered patches, and has a growth of post oak, black-jack, chincapin, and white oak; its thickness is 6 inches, over a subsoil of yellow clay. The chief crops are corn, wheat, oats, cotton, and tobacco, but the soil is best adapted to the last. One-fourth of such land is in cotton, and its usual height is 2 feet, but it is most productive at 2½ feet. Fresh land produces from 1,000 to 1,200 pounds, from 1,425 to 1,545 pounds making a bale. The yield after three years' cultivation is from 800 to 1,000 pounds per acre, 1,660 pounds making a bale; but the staple from fresh land rates the best. The worst pests in cultivation are crab-grass and rag-weed. Not more than one-fifth of such lands once cultivated now lies turned out.

PERSON.

Population: 13,719.—White, 7,206; colored, 6,513.

Area: 401 square miles.—Woodland, 96,011 acres.

Tilled lands: 71,634 acres.—Area planted in cotton, 2 acres; in tobacco, 5,868 acres; in corn, 19,372 acres; in wheat, 8,974 acres; in oats, 9,821 acres.

Cotton production: 1 bale; average cotton product per acre, 0.50 bale, 711 pounds seed-cotton, or 237 pounds cotton lint.

Person county lies outside of the cotton belt, and belongs to the bright tobacco zone. Near the middle of it rise several low mountain ridges of granite and slate, with oak and pine forests. These attain an altitude of about 1,000 feet (the general elevation being from 600 to 700 feet), and have a thin gravelly and sandy soil, while the other sections are alternately of this character and of red-clay soils of greater fertility. To the latter class belong especially the northwestern and southeastern sections. The chief agricultural interest is the production of tobacco of a high grade, in which industry this is one of the leading counties. To this crop the light sandy soils are peculiarly adapted. In tobacco product Person county is fourth in rank. Of the county area, 27.91 per cent is tilled land, of which only an insignificant portion is planted in cotton.

Transportation is by wagon to the railroad in adjoining counties, and so to Richmond and the other markets.

CASWELL.

Population: 17,825.—White, 7,169; colored, 10,656.

Area: 407 square miles.—Woodland, 76,200 acres.

Tilled lands: 83,545 acres.—Area planted in cotton, 6 acres; in tobacco, 10,174 acres; in corn, 25,663 acres; in wheat, 10,841 acres; in oats, 14,441 acres.

Cotton production: 4 bales; average cotton product per acre, 0.67 bale, 951 pounds seed-cotton, or 317 pounds cotton lint.

Caswell county duplicates the features of Person, both agriculturally and topographically, except that the mountains are wanting. The larger part of its territory is devoted to the production of bright yellow tobacco, while grain crops occupy a comparatively subordinate position, and are produced principally along the river and creek bottoms which abound in the northern and eastern sections of this county. The northeastern section consists largely of red-clay lands, with oak and hickory forests, while the lighter tobacco soils occupy most of the southern and western portions. Caswell ranks third among the tobacco counties in aggregate product. Of the county area, 32.07 per cent. is tilled land, of which 0.01 per cent. is planted in cotton.

Transportation is furnished by the Richmond and Danville railroad and a branch of it.

ROCKINGHAM.

Population: 21,744.—White, 12,431; colored, 9,313.

Area: 582 square miles.—Woodland, 138,200 acres.

Tilled lands: 77,439 acres.—Area planted in cotton, 5 acres; in tobacco, 9,332 acres; in corn, 25,175 acres; in wheat, 11,298 acres; in rye, 301 acres; in oats, 15,200 acres.

Cotton production: 3 bales; average cotton product per acre, 0.60 bale, 855 pounds seed-cotton, or 285 pounds cotton lint.

Rockingham, like the two preceding, is a border county, and belongs to the same famous bright tobacco belt. It is traversed in a northeasterly course by the waters of the Dan river, and its southern section is drained by the upper tributaries of the Cape Fear (Haw) river. The northwestern corner of this county, constituting about one-third of its territory, near the Virginia line and north of the Dan river, consists for the most part of elevated flattish ridges and swells having gray, yellow, gravelly, loam soils, while the southern and eastern two-thirds of the county consist of alternating belts of these loams and of red clays. Besides tobacco, in which this county ranks second, large crops of

grain are produced—upward of 600,000 bushels. Dan river, with its tributaries, furnishes abundant water-power, and the former stream is navigable in a small way for flat-boats. A bed of semi-bituminous coal, 3 feet in thickness, and of good quality, outcrops in the eastern section, but it has been but little mined. Of the county area, 20.79 per cent. is tilled land, of which only 0.01 per cent. is planted in cotton.

Shipments are made by rail to Danville, Richmond, and other markets.

STOKES.

Population: 15,353.—White, 11,730; colored, 3,623.

Area: 476 square miles.—Woodland, 131,483 acres.

Tilled lands: 53,369 acres.—Area planted in cotton, 13 acres; in tobacco, 4,690 acres; in corn, 19,969 acres; in wheat, 9,374 acres; in rye, 1,195 acres; in oats, 8,408 acres.

Cotton production: 7 bales; average cotton product per acre, 0.54 bale, 768 pounds seed-cotton, or 256 pounds cotton lint.

Stokes is another border county, and belongs also to the bright tobacco belt. It is drained by the upper tributaries of the Dan, and belongs to the Piedmont division of the state. Its surface is for the most part quite rugged and broken, containing the terminal spurs and ridges of the Brushy mountains, which here attain an elevation of more than 2,500 feet above the sea. The general elevation is above 1,000 feet. The forests of this county and of the Piedmont region generally contain an added element, the chestnut, on elevated ridges and mountain slopes, and the proportion increases with the elevation. A new species of oak also makes its appearance, the chestnut oak, which occupies the crests and upper slopes of the poorer stony and gravelly ridges of the whole mountain region. The proportion of sourwood (*Oxydendron*) also increases to such an extent in the Piedmont region as to become a marked characteristic of its forests, and is indicative of a scant soil. It is worthy of note that, with the extinction of the herbage which originally mantled the soil and kept it moist, the chestnut has almost disappeared in half a century from the upper midland counties, and is dying out slowly in the Piedmont region.

The soils of this county resemble those of Rockingham, being predominantly yellow and gray gravelly loams, with occasional red-clay belts, the former well adapted to the production of the higher grades of tobacco, which constitutes the chief element of its agriculture, and in the total product of which this county stands fifth. Its manufacturing facilities are great but undeveloped, and it is rich in iron ores. Its agriculture has the advantage of the presence of several limestone beds, and there are also outcrops of semi-bituminous coal in the southeastern section. Of the county area, 17.52 per cent is tilled land, of which only 0.02 per cent. is planted in cotton.

Transportation is by wagon, and occasionally by flat-boats on the Dan river. A railroad from Greensboro' is nearly finished to the border.

FORSYTH.

Population: 18,070.—White, 13,441; colored, 4,629.

Area: 364 square miles.—Woodland, 91,053 acres.

Tilled lands: 59,157 acres.—Area planted in cotton, 16 acres; in tobacco, 1,693 acres; in corn, 20,920 acres; in wheat, 13,590 acres; in rye, 492 acres; in oats, 11,780 acres.

Cotton production: 10 bales; average cotton product per acre, 0.63 bale, 891 pounds seed-cotton, or 297 pounds cotton lint.

Forsyth county lies west of Guilford, and is bounded on the west by the Yadkin river. Through its middle portion is a broad swell or plateau, the divide between the waters of the Yadkin and Dan, with an elevation of from 1,000 to 1,200 feet, and having forests of oak, dogwood, sourwood, pine, etc. Its soils are light, gray loams. The tributaries of the Yadkin, which drain the southwestern section, abound in bottom lands of great fertility, and have heavy oak forests, interspersed with hickory, walnut, poplar, etc., while the middle, northern, and eastern sections are characterized largely by gray sandy loam soils, with forests of oak and pine. This county shows an increasing product of the better and medium grades of tobacco, but it produces chiefly grain crops—an aggregate of more than 500,000 bushels. Of the county area, 25.39 per cent. is tilled land, of which cotton occupies only 0.03 per cent.

Transportation is by rail to Greensboro' and to the other markets beyond.

DAVIE.

Population: 11,096.—White, 7,770; colored, 3,326.

Area: 289 square miles.—Woodland, 63,566 acres.

Tilled lands: 59,272 acres.—Area planted in cotton, 790 acres; in tobacco, 1,205 acres; in corn, 22,125 acres; in wheat, 13,244 acres; in rye, 444 acres; in oats, 13,366 acres.

Cotton production: 302 bales; average cotton product per acre, 0.38 bale, 546 pounds seed-cotton, or 182 pounds cotton lint.

The small county of Davie lies in the angle between the Yadkin and the South Yadkin rivers, and resembles in its general features the preceding county. It also corresponds with that county in its agricultural productions. In the southern half of this county the soils belong largely to the class of red clays, and are covered with heavy oak forests, while the middle and northern portions have a mixed growth of oaks and pines and a light-gray, sandy, and gravelly soil. This section of the county is mainly devoted to the culture of tobacco. The river hills, flanking both the Yadkin and its chief tributaries, are quite broken, and have a productive gravelly loam soil and forests predominantly of oak. The elevation of the surface ranges from 700 to 1,000 feet, the average being about 850 feet above sea-level. The culture of cotton has recently entered the southern and western townships. The grain crop is quite large, exceeding 650,000 bushels; and latterly also tobacco has been cultivated to a considerable extent in the north and west sections, the soils of a large part of its territory being well adapted to the higher grades. There are several valuable iron-ore deposits in the county. Of the county area, only 32.05 per cent. is tilled land, and the proportion of cotton planted is 1.33 per cent. of the latter.

Transportation is furnished by the Western North Carolina railroad, which crosses the adjacent county of Rowan.

YADKIN.

Population : 12,420.—White, 10,876; colored, 1,544.

Area : 351 square miles.—Woodland, 89,582 acres.

Tilled lands : 52,816 acres.—Area planted in cotton, 87 acres; in tobacco 425 acres; in corn, 21,735 acres; in wheat, 10,190 acres; in rye, 821 acres; in oats, 11,289 acres.

Cotton production : 26 bales; average cotton product per acre, 0.30 bale, 426 pounds seed-cotton, or 142 pounds cotton lint.

Yadkin county lies immediately north of Davie, in the bend of the Yadkin river, which bounds it northward and eastward. It is traversed in a nearly east and west course by the Brushy mountains, which here drop down into low spurs and swells, the average elevation of the county being probably not greater than 1,200 feet. Its soils and forests are like those of Davie county. Its agricultural interest is divided between the production of tobacco and grain crops, the product of the latter nearly reaching half a million bushels. Cotton culture has invaded its southern border to a small extent within a few years. There are several iron mines in the county, but they have been little worked, as they are too far from market. Of the county area, 23.51 per cent. is tilled land, of which 0.16 per cent. is planted in cotton.

No railroad has yet reached the county.

SURRY.

Population : 15,302.—White, 13,227; colored, 2,075.

Area : 476 square miles.—Woodland, 188,631 acres.

Tilled lands : 69,011 acres.—Area planted in cotton, 3 acres; in tobacco, 2,136 acres; in corn, 25,334 acres; in wheat, 9,823 acres; in rye, 3,027 acres; in oats, 9,199 acres; in buckwheat, 71 acres.

Cotton production : 1 bale; average cotton product per acre, 0.33 bale, 474 pounds seed-cotton, or 158 pounds cotton lint.

Surry is a north border county contiguous to the Blue Ridge, and belongs to the Piedmont section of the state. The Yadkin river is its southern boundary. Its western section is quite mountainous, and there are small mountains in the middle; so that its surface is quite broken, and its average elevation is nearly 1,400 feet. Its soils and forests are like those of the neighboring counties, Stokes and Forsyth, the high slaty ridges and mountains, as well as much of the rolling surface, having a light gray, sandy loam soil and forests of oak and pine, with sourwood and chestnut, while the better tracts of reddish clay loams have a predominant growth of oaks, hickory, poplar, etc., with little or no pine.

The agriculture of the county is like that of Stokes, tobacco of the better grades being the chief market crop, but of greatly less value than the grain product, which exceeds 500,000 bushels. The water-power of the county is notable, a number of large tributaries of the Yadkin crossing its territory with a fall of several hundred feet. This is a feature common to the whole Piedmont region. There are several cotton factories and iron mines and forges in the county. Of the county area, 22.65 per cent. is tilled land, of which only an insignificant portion is cultivated in cotton.

WILKES.

Population : 19,181.—White, 17,257; colored, 1,924.

Area : 626 square miles.—Woodland, 268,834 acres.

Tilled lands : 80,512 acres.—Area planted in cotton, 107 acres; in tobacco, 110 acres; in corn, 34,865 acres; in wheat, 9,515 acres; in rye, 5,236 acres; in oats, 8,240 acres; in buckwheat, 218 acres.

Cotton production : 29 bales; average cotton product per acre, 0.27 bale, 387 pounds seed-cotton, or 129 pounds cotton lint.

Wilkes county lies west of Surry, and differs from it only in being more mountainous and rugged and having a greater average elevation—not less than 1,500 feet. Its northern margin rests on the summits of the Blue Ridge (at an elevation of from 3,000 to 4,000 feet), its southern on the Brushy mountains (from 2,000 to 2,500 feet above sea-level), and its whole surface is carved into a succession of mountain ridges and narrow intervening valleys by the Yadkin and its numerous tributaries. Its agriculture and its forests may be described in the same terms as were those of Surry, except that, with the increase of elevation, the growth of chestnut increases, and a new forest element enters, to a small extent, in the white pine (*P. strobus*), both in the South mountains and on the flanks of the Blue Ridge. Along the margin of the Yadkin river and its larger tributaries are frequent and wide tracts of sandy and clay bottom lands. In various parts of the county are small areas of reddish clay soil, but much the larger part of it shows the average oak upland soil, yellow or gray sandy loam. The lighter soils are well adapted to the highest grades of tobacco, the culture of which begins to enter largely into its agriculture. Of the county area, 20.10 per cent. is tilled land, of which only 0.13 per cent. is planted in cotton. The water-power of the county is very large, the sources of its multitude of rivers having an elevation of from 2,000 to 3,000 feet above tide, and their mouths less than 1,000 feet.

ALEXANDER.

Population : 8,355.—White, 7,458; colored, 897.

Area : 245 square miles.—Woodland, 82,690 acres.

Tilled lands : 41,572 acres.—Area planted in cotton, 617 acres; in tobacco, 28 acres; in corn, 16,789 acres; in wheat, 6,376 acres; in rye, 760 acres; in oats, 7,503 acres.

Cotton production : 182 bales; average cotton product per acre, 0.29 bale, 420 pounds seed-cotton, or 140 pounds cotton lint.

Alexander, one of the smallest counties in North Carolina, lies south of Wilkes, and is separated from it by the chain of the Brushy mountains. A large part of this county is traversed or penetrated by spurs and high ridges thrown off southward from that range, many of which rise to the elevation of 2,000 feet, and its territory is drained southward by the tributaries of the Catawba. The southeastern section, as well as the middle, is characterized largely by oak forests, with red-clay soils, the higher divides and ridges and spurs showing a large admixture of pine and chestnut and a more open, light colored, and sandy soil. The northern, western, and northeastern sections are quite broken and mountainous. The culture of cotton has entered the territory of this county within the last few years, though its product amounts to but a few score of bales. Tobacco is cultivated to some extent on the lighter soils, but corn and wheat are the principal products. It has ample, but undeveloped, water-power, and it has iron-ore beds of considerable extent, as well as a great variety of other minerals. Of the county area, 26.51 per cent. is tilled land, of which 1.49 per cent. is planted in cotton.

ABSTRACT OF THE REPORT OF W. P. BURKE, OF TAYLORSVILLE.

The chief soil is a clay *gravelly loam*, embracing three-fourths of the lands, and having a natural timber growth of oaks, hickory, and pine. The thickness of the soil is 8 inches over a red-clay subsoil. The chief crops are corn, wheat, and oats. The proportion planted in cotton is 1 acre in 25; the usual height is 3 feet, and it is most productive at 2½ feet. Fresh land produces 600 pounds of seed-cotton per acre, 1,425 pounds making a bale of lint. None of these lands lie turned out. The soil easily gullies on slopes, but there is no serious damage done.

Transportation is by wagon to the railroad at Statesville.

CALDWELL.

Population: 10,291.—White, 8,691; colored, 1,600.

Area: 495 square miles.—Woodland, 151,637 acres.

Tilled lands: 41,512 acres.—Area planted in cotton, 30 acres; in tobacco, 75 acres; in corn, 17,315 acres; in wheat, 8,211 acres; in rye, 684 acres; in oats, 3,886 acres.

Cotton production: 12 bales; average cotton product per acre, 0.40 bale, 570 pounds seed-cotton, or 190 pounds cotton lint.

Caldwell county lies upon the flanks of the Blue Ridge, and extends southward beyond the Brushy mountains, a smaller and parallel range 2,000 feet and more in altitude. It is drained by the upper tributaries of the Catawba river and of the Yadkin, the larger of which rise in the summits of the Blue Ridge and its culminating region in Grandfather mountain, which touches the elevation of nearly 6,000 feet above the sea. This mountain throws off a number of long, heavy spurs down to the middle of the county; and is traversed midway in a direction parallel to the other two chains by the Warrior mountains, so that its surface is for the most part quite broken and rugged; but the different chains are separated by extensive open valleys, and there is a great area of river and creek bottoms. The lands in the middle and southern sections generally have a red clay or yellow sandy loam soil of more than medium fertility, while its higher regions, on the ridges and spurs of the mountains, are frequently slaty ledges, with gray sandy and gravelly soils of medium to low quality. Its forests are predominantly of oak in the middle section and of pine and oak in the southern and northern, that is, in the more mountainous regions, while in the latter section white pine, hemlock, and chestnut constitute a considerable element of the forest growth. The chief crops are grain, but tobacco culture has been recently introduced, and for a few years past a few bales of cotton have been raised in an experimental way. Of the county area, 13.10 per cent. is tilled land, of which 0.07 per cent. is cultivated in cotton. Of minerals the county contains gold and iron, the former in both placers and veins.

Transportation is furnished by the Western North Carolina railroad, which crosses the neighboring counties south, and a narrow-gauge road is nearly finished to the center of the county.

BURKE.

Population: 12,809.—White, 10,088; colored, 2,721.

Area: 489 square miles.—Woodland, 129,089 acres.

Tilled lands: 42,545 acres.—Area planted in cotton, 752 acres; in tobacco, 58 acres; in corn, 22,613 acres; in wheat, 10,016 acres; in rye, 1,054 acres; in oats, 3,455 acres.

Cotton production: 361 bales; average cotton product per acre, 0.48 bale, 684 pounds seed-cotton, or 228 pounds cotton lint.

Burke county lies westward of Caldwell on both sides of the Catawba river, which traverses its middle section and drains its entire territory. Its southern flank lies upon the crests of the South mountains, which here reach an elevation of over 3,000 feet above the sea and send off spurs in a northerly and northeasterly direction almost to the middle of the county. The northern end is elevated upon two of the most massive spurs of the Blue Ridge, Linville and Table Rock, which here rise to an elevation of nearly 4,000 feet; and from this are thrust out numerous long and rugged spurs and ridges in a southeasterly course. A large part of the territory of this county, therefore, is mountainous, and the average elevation is not less than 1,300 feet. In its middle section are considerable tracts of red-clay soils, with forests predominantly of oak, hickory, etc., while the remainder of the county is characterized in this respect by mixed forests of oak, pine, chestnut, etc., with white pine in the mountains of the south and north. The river and creek bottoms are very extensive and fertile, and have light-colored clays, loams, and sandy soils. In the middle section, on both sides of the river, the uplands usually have a red-clay soil and oak forests. The other parts of the county have soils of a lighter color, yellowish to gray loams, and forests of the usual mixed character of the region—oak, pine, chestnut, sourwood, dogwood, etc. Placer gold mines are numerous in the South mountains, and there are several vein mines on the north side of the county. Cotton and tobacco have been added to the list of cultivated crops within a few years, but grain forms the chief crop, and has an aggregate yield of 400,000 bushels. Of the county area, 13.59 per cent. is tilled land, of which 1.78 per cent. is planted in cotton.

Transportation is by rail, east and west.

McDOWELL.

Population: 9,836.—White, 7,936; colored, 1,897.

Area: 545 square miles.—Woodland, 122,129 acres.

Tilled lands: 34,798 acres.—Area planted in cotton, 23 acres; in tobacco, 100 acres; in corn, 17,675 acres; in wheat, 6,397 acres; in rye, 1,360 acres; in oats, 1,690 acres.

Cotton production: 9 bales; average cotton product per acre, 0.39 bale, 558 pounds seed-cotton, or 186 pounds cotton lint.

McDowell county lies on the eastern flank of the Blue Ridge near its highest parts, which exceeds in this region an elevation of 5,500 feet, and its whole territory may be described as mountainous. Its average elevation is more than 1,500 feet, and it is for the most part drained by the headwaters of the Catawba river. The southern and broader end of its triangular territory is traversed east and west by the South mountains, a long eastward projection or spur from the Blue Ridge. Along the course of the Catawba river and some of its chief tributaries are wide tracts of sandy and alluvial bottoms, which are very productive. The hilly and mountainous tracts have the usual variety of gray and yellowish oak uplands soils of medium fertility and mixed forests of oak, pine, chestnut, etc. Reddish clay-loam soils, with a preponderant oak forest, are found in patches here and there in the middle and southeastern sections. A large proportion of the soils of the county are well adapted to the better grades of tobacco, and the agriculture of the county has the great advantage of an abundance of limestone in the northern and middle sections. Gold mining in the South mountains has long been an important industry, several mica mines having been opened, and some attention is given to lumbering. There is a large amount of valuable timber on the slopes of the Blue Ridge and in the mountain coves, which must become the foundation of important manufactures, and then there is an indefinite amount of water-power. Iron ores of low grade are abundant. Of the county area, 9.98 per cent. is tilled land, of which 0.07 per cent. is planted in cotton.

Transportation is by rail, east and west.

POLK.

Population: 5,062.—White, 3,918; colored, 1,144.

Area: 257 square miles.—Woodland, 72,813 acres.

Tilled lands: 21,027 acres.—Area planted in cotton, 1,646 acres; in corn, 10,632 acres; in wheat, 1,896 acres; in rye, 606 acres; in oats, 877 acres.

Cotton production: 362 bales; average cotton product per acre, 0.22 bale, 312 pounds seed-cotton, or 104 pounds cotton lint.

Polk is the southernmost of the Piedmont counties, lying upon the border of South Carolina, and of the cotton belt, which barely enters its southeastern corner. Three-fourths of the territory of the county is very mountainous, as it is bounded westward by the Blue Ridge, and its western and northern sections are penetrated by heavy and long spurs, thrown out from that range, of equal height or greater. It is crossed from west to east and nearly its entire territory is drained by the waters of Green river, one of the principal tributaries of the Broad. Along this river valley, as well as on some of the tributaries, are wide stretches of bottom lands of clay and sandy loams. The middle part of the county is a somewhat broken plateau of 1,000 feet elevation, and has a gravelly and slaty soil of a light color and loose texture and low fertility, and inferior forests of pine, oak, and chestnut. The southeastern section is of the same character. A large part of the uplands and of the mountain slopes in the west and north has forests largely of oak and a yellowish or gray loamy soil of good quality. In the higher parts, except where the soil is of the better grades, chestnut and chestnut oak are abundant. The principal agricultural pursuit is the production of grain crops, cotton being a new crop to the region, and as yet little cultivated. There are several gold mines in the middle and southern sections. Of the county area, 12.78 per cent. is tilled land, of which 7.83 per cent. is planted in cotton. Produce is shipped south by rail.

THE TRANSMONTANE REGION.

(Embraces the following counties: Alleghany, Ashe, Watauga, Mitchell, Yancey, Madison, Buncombe, Henderson, Transylvania, Haywood, Jackson, Macon, Swain, Graham, Clay, and Cherokee.)

ALLEGHANY.

Population: 5,486.—White, 4,967; colored, 519.

Area: 276 square miles.—Woodland, 74,859 acres.

Tilled lands: 46,198 acres.—Area planted in cotton, none; in corn, 7,201 acres; in wheat, 1,760 acres; in rye, 3,121 acres; in oats, 1,933 acres; in buckwheat, 755 acres.

Alleghany county is situated on the Virginia border, and is bounded southward by the curves of the Blue Ridge. In its middle section is a parallel and higher chain. Its entire surface is drained northward into the New and the Kanawha rivers, this, with the two following counties, constituting the New River plateau or basin, the only part of the state drained by the Ohio. It lies on the northeastern end of the long, narrow, elevated transmontane plateau, and has an average elevation of not less than 2,800 feet. Its forests are of oak, chestnut, and pine, with an admixture of white pine in the coves of the Blue Ridge and between that and the Peach Bottom range. Its soils are the common gray and yellow upland loams. Along the banks of the New river and its principal tributaries, especially Little river, are considerable tracts of bottom lands. Its agriculture is divided between the production of grains and grasses and cattle raising. Its products of buckwheat and rye are next to the largest in the state. Of the county area, 26.15 per cent. is tilled land.

ASHE.

Population: 14,437.—White, 13,471; colored, 966.

Area: 370 square miles.—Woodland, 166,973 acres.

Tilled lands: 70,207 acres.—Area planted in cotton, none; in tobacco, 60 acres; in corn, 15,616 acres; in wheat, 5,473 acres; in rye, 4,685 acres; in oats, 3,357 acres; in buckwheat, 818 acres.

Ashe county lies in the northwestern corner of the state, adjoining the states of Virginia and Tennessee, its southeastern edge resting upon the summits of the Blue Ridge mountain chain. It is very rugged and mountainous, the spurs of the Smoky mountains being thrust out almost across its entire territory and reaching at various points an elevation of nearly 5,000 feet, giving an average elevation of 3,500 feet above tide. It is drained by the two forks of New river, which meet in its northeast corner. Its forests, soils, and agriculture resemble those of Alleghany county. Grass and cattle count for much in this region, and rye and buckwheat are its common crops, as well as of Alleghany and the whole transmontane plateau. In the former (rye) this county shows the largest product in the state, and in the second it is nearly equal to the best. White pine and hemlock, as well as poplar, sugar maple, wild cherry, and walnut, become important constituents of the forests in many places. Of the county area, 29.65 per cent. is tilled land.

WATAUGA.

Population: 8,160.—White, 7,746; colored, 414.

Area: 370 square miles.—Woodland, ——— acres.

Tilled lands: 44,753 acres.—Area planted in cotton, 10 acres; in corn, 8,227 acres; in wheat, 2,957 acres; in rye, 2,387 acres; in oats, 1,828 acres; in buckwheat, 951 acres.

Cotton production: 3 bales; average cotton product per acre, 0.30 bale, 429 pounds seed-cotton, or 143 pounds cotton lint.

Watauga county occupies the whole breadth of the narrower part of the transmontane plateau, being bounded for the most part northwestward by the Smoky range and southeastward by the Blue Ridge. It is traversed in a northerly course by two massive cross-chains connecting the summits of the Blue Ridge and Smoky mountains, the Rich mountains and the chain of Hanging Rock and Beech. Its average elevation would about equal that of Ashe county—3,500 feet. Its whole surface is rugged and mountainous, with the exception of a few limited tracts along the two principal rivers, where considerable valleys open out, with occasional stretches of bottom lands. The soils and forests, as well as the predominant agricultural features of this county, are like those of Ashe county. There is great abundance of chestnut in its forests, and on the Rich mountains there are great quantities of linden (*Tilia*). Its high levels and benches are the best grass lands in the state, and in consequence cattle-raising enters largely into its agriculture. It also produces corn and small grains in considerable quantities, including wheat, rye, and buckwheat, the county leading in the last-named crop. Of the county area, 18.89 per cent. is tilled land, of which very little is cultivated in cotton.

MITCHELL.

Population: 9,435.—White, 8,932; colored, 503.

Area: 401 square miles.—Woodland, 105,586 acres.

Tilled lands: 31,975 acres.—Area planted in cotton, 15 acres; in tobacco, 77 acres; in corn, 11,894 acres; in wheat, 3,374 acres; in rye, 1,358 acres; in oats, 3,990 acres; in buckwheat, 378 acres.

Cotton production: 6 bales; average cotton product per acre, 0.40 bale, 570 pounds seed-cotton, or 190 pounds cotton lint.

Mitchell county is a continuation of the southern Appalachian plateau, and with Yancey, the next county described, occupies the basin of the Nolichucky or Toe river, which drains the highest masses and summits of the Blue Ridge and Black mountains. On its northern border the Smoky mountains reach an elevation of 6,400 feet, while the Blue Ridge, which forms its southeastern boundary, has an elevation ranging from 3,000 to nearly 6,000 feet. Its surface is for the most part very mountainous, and has an elevation which would probably reach an average of 3,000 feet above the sea.

The mountains of this county, as well as those of the other parts of the plateau, are generally covered with heavy forests of oak, chestnut, and pine, with a mixture here and there in the coves and on the higher slopes of white pine, hemlock (*Abies Canadensis*), and black birch, while the lower slopes are covered with linden (two species), sugar maple, poplar, walnut, cherry, ash, etc.

The soils of this county vary in their texture and composition, and belong to the general region of oak uplands soils, being for the most part gray and yellow gravelly and sandy loams, with occasional strips of red lands. The mountains here, as in the two preceding counties, are generally covered to their summits with a fertile soil and heavy forests, the exception being some of the higher dome-like masses of the Smoky mountains (notably the Roan), which are bald upon their summits, and are, in fact, simply prairies. The average elevation of this county above the sea will exceed 3,000 feet. Its agriculture resembles that of the two preceding counties, the conditions being well adapted for the most part to cattle-raising, as well as to the production of grain crops. Tobacco culture has recently been introduced, but mica mining is the most important and profitable industry, while along its northern border are some of the finest iron-ore beds known. The first southern mica mines were opened here in 1868. Of the county area, 12.46 per cent. is tilled land, of which 0.05 per cent. is cultivated in cotton.

YANCEY.

Population: 7,694.—White, 7,369; colored, 325.

Area: 276 square miles.—Woodland, 109,776 acres.

Tilled lands: 34,703 acres.—Area planted in cotton, none; in tobacco, 84 acres; in corn, 11,200 acres; in wheat, 3,940 acres; in rye, 1,290 acres; in oats, 3,657 acres.

The description of Mitchell, the preceding county, applies to Yancey. It completes with that the basin of the Toe river or Nolechucky, one of the main affluents of the Tennessee river. The massive spur of the Black mountains rises in the middle of its southern end and projects northward almost to its center. This spur reaches an elevation in its middle portion of nearly 7,000 feet, and is the highest mountain east of the Mississippi river. Between this mountain spur and the Blue Ridge is a deep, narrow valley, in which rises and flows South Toe river, while on its westward flanks rises, in a similar gorge, Caney river, another of the confluent of the Nolechucky. The county is bounded on the southwest by a cross-chain from the Blue Ridge to the Smoky mountains, the northwest Black mountains, which through a considerable part of its course reaches an elevation of 5,000 feet and upward. The whole territory of this county, therefore, is exceedingly rugged and mountainous, and the larger part of its surface is adapted only to grazing; but in the valleys and troughs between the mountain spurs and ranges are considerable stretches of undulating and hilly land and occasional tracts of considerable extent of bottom land, which are very productive in corn and small grains. The culture of tobacco has also penetrated into this county within the last few years. The tilled land occupies 19.65 per cent. of the county area. The timbers and soils are similar to those of Mitchell county, and mica mining holds here a similar place of importance. Above 5,000 feet the principal growth on the Black mountains is two species of fir, *Abies Fraseri* and *A. nigra* (spruce). These trees are also found on the summits of the Roan and Grandfather, and farther west on the Balsam mountains. Lumber mills have multiplied very rapidly in the great forests of the last three counties, and enormous quantities of cherry, walnut, ash, sugar maple, and poplar lumber have been manufactured and exported in the last year.

MADISON.

Population: 12,810.—White, 12,351; colored, 459.

Area: 457 square miles.—Woodland, 157,618 acres.

Tilled lands: 57,490 acres.—Area planted in cotton, 12 acres; in tobacco, 1,626 acres; in corn, 17,816 acres; in wheat, 7,702 acres; in rye, 816 acres; in oats, 4,238 acres.

Cotton production: 4 bales; average cotton product per acre, 0.33 bale, 474 pounds seed-cotton, or 158 pounds cotton lint.

Madison county, with Buncombe, Henderson, and Transylvania, make the plateau or basin of the French Broad the largest of these natural subdivisions of the plateau. It is bounded northward by the Smoky mountains. Its territory is also very rugged and broken, being not only surrounded by heavy, massive chains of mountains, but crossed and cut up by heavy spurs of those principal chains. Its soils, forests, and agricultural productions are like those of the preceding counties, except that bright yellow tobacco has recently become its most important crop, and already nearly reaches a million pounds per annum. It has also a larger proportion of white pine in its forests, and its iron-ore deposits are extensive and valuable. Of the county area, 19.66 per cent. is tilled land, of which 0.02 per cent. is cultivated in cotton.

BUNCOMBE.

Population: 21,909.—White, 18,422; colored, 3,487.

Area: 614 square miles.—Woodland, 226,454 acres.

Tilled lands: 77,628 acres.—Area planted in cotton, 1 acre; in tobacco, 947 acres; in corn, 29,108 acres; in wheat, 17,501 acres; in rye, 2,966 acres; in oats, 6,967 acres; in buckwheat, 575 acres.

Buncombe county occupies the middle portion of the French Broad valley. Its eastern border lies upon the summits of the Blue Ridge and the Black mountains, and its western upon the summits of the cross-chain called the Newfound mountains. The valley of the French Broad here is a wide, open basin, with considerable tracts of undulating and hilly land and moderately mountainous tracts, while along its margin on every side are heavy mountain spurs. The forests and soils are of the usual familiar description, and the agriculture resembles in its main features that of the Piedmont division, consisting chiefly of the production of grains, of which the total is 650,000 bushels, and to a moderate (but rapidly increasing) extent of tobacco. Cattle-raising occupies a subordinate position. The tilled lands occupy 19.75 per cent. of the county area. The crossing of two great railroad lines at Asheville, in the center of the county, gives it a commanding commercial position, and it is the center of a great summer travel. The average elevation of the French Broad plateau is about 2,500 feet.

HENDERSON.

Population: 10,281.—White, 8,893; colored, 1,388.

Area: 351 square miles.—Woodland, 106,441 acres.

Tilled lands: 38,595 acres.—Area planted in cotton, 10 acres; in tobacco, 29 acres; in corn, 16,407 acres; in wheat, 2,598 acres; in rye, 3,734 acres; in oats, 2,908 acres; in buckwheat, 107 acres.

Cotton production: 4 bales; average cotton product per acre, 0.40 bale, 570 pounds seed-cotton, or 190 pounds cotton lint.

COTTON PRODUCTION IN NORTH CAROLINA.

Henderson county is a continuation southward of the French Broad valley described in Buncombe county, and its topographical features are very similar, except that there are broader areas of comparatively level and undulating lands, but of less fertility, the soils being predominantly light gray gravelly loams, and its forests being mixed growths of oak and pine, with hemlock and chestnut. Near the water-courses, in the mountain coves, are found walnut, cherry, maple, and occasionally white pine. The chief productions of this county are corn and small grains, the culture of tobacco being very recently introduced, and then only to a very small extent. There is a large aggregate surface of bottom lands in the county, those on the French Broad being very extensive and fertile. Of the county area, 17.18 per cent. is tilled land, of which 0.03 per cent. is cultivated in cotton.

Transportation is southward by rail.

TRANSYLVANIA.

Population: 5,340.—White, 4,823; colored, 517.

Area: 382 square miles.—Woodland, 77,815 acres.

Tilled lands: 17,967 acres.—Area planted in cotton, none; in corn, 9,762 acres; in wheat, 869 acres; in rye, 3,289 acres; in oats, 257 acres.

Transylvania county occupies the upper portion of the valley of the French Broad, and lies along the flanks of the Blue Ridge and on the southern border of the state. It is bounded westward by a heavy cross-chain from the Blue Ridge to the Smoky mountains, the Balsam mountains, which rises throughout a considerable part of its course above 6,000 feet. This county is therefore the most elevated portion of the plateau of the French Broad. It is mostly mountainous and rugged, with spurs and knobs of mountains thrust out from the cross-chains which bound it. There are very extensive tracts of bottom lands along the tortuous course of the French Broad, reaching often a breadth of 1 or 2 miles, which are very fertile and produce immense crops of corn. The larger portion of the county, however, is only adapted to grazing. Its forests resemble those of the plateau generally, but contain a larger intermixture of white pine, as well as of hemlock, sugar maple, walnut, and cherry. The tilled lands occupy 7.35 per cent. of the county area.

HAYWOOD.

Population: 10,271.—White, 9,787; colored, 484.

Area: 582 square miles.—Woodland, 115,632 acres.

Tilled lands: 40,474 acres.—Area planted in cotton, none; in tobacco, 100 acres; in corn, 17,254 acres; in wheat, 10,054 acres; in rye, 757 acres; in oats, 4,099 acres; in buckwheat, 633 acres.

Haywood county occupies the plateau or basin between the parallel cross-chains of the Newfound and the Balsam mountains, which lie at right angles to the main chains (the Blue Ridge and Smoky) at an average distance from each other of about 20 miles.

This basin is drained by the waters of Pigeon river, one of the tributaries of the French Broad, which enters it beyond the Smoky mountains in Tennessee. This county is hemmed in on all sides by high mountain chains of 3,000, 5,000, and 6,000 feet and more above the sea. Its territory is exceedingly broken and rugged; yet there are considerable tracts of open, moderately hilly lands along the water courses, and occasional wide stretches of fertile bottoms, especially on the upper confluent of the river and near the middle of the basin. The average elevation is above 3,000 feet.

The soils are of the usual description, and are above average fertility. It is one of the best grazing sections, and produces all the grain crops of the region, including rye and buckwheat, but, as yet, little tobacco. The mountains are clothed to their summits with forests of a great range of species. On the lower slopes and in the rich coves, besides the usual characteristic oaks, hickories, cucumbers, poplar, chestnut, etc., are found in abundance walnut, black locust, cherry, and ash, and a little higher sugar maple, linden, black birch, and beech, and on the highest ranges two species of fir. Since the advent of the railroad lumbering is rapidly becoming an important industry. The tilled land occupies 10.87 per cent. of the county area.

JACKSON.

Population: 7,343.—White, 6,591; colored, 752.

Area: 532 square miles.—Woodland, 136,317 acres.

Tilled lands: 28,606 acres.—Area planted in cotton, 16 acres; in corn, 12,793 acres; in wheat, 4,217 acres; in rye, 1,583 acres; in oats, 1,521 acres; in buckwheat, 175 acres.

Cotton production: 6 bales; average cotton product per acre, 0.38 bale, 534 pounds seed-cotton, or 178 pounds cotton lint.

Jackson county is quite similar to Haywood in its topographical and agricultural features, but is more rugged, and has less open bottom and valley land. It occupies the basin of the Tuckasegee river, a tributary of the Tennessee, lies west of the Balsam mountains, is bounded by the Cowee cross-chain on the west and extends south to the Blue Ridge, and includes a high plateau beyond it of nearly 100 square miles, with an elevation of from 3,500 to 4,000 feet above sea-level. The county is well adapted to the production of grass. The soils, forests, and productions are like those of Haywood. Mica is mined in the county in many places, and gold is found on the plateau south of the Blue Ridge. Of the county area, 8.4 per cent. is under tillage, and of this 0.06 per cent. is in cotton. A railroad has been recently graded across the county.

MACON.

Population: 8,064.—White, 7,395; colored, 669.

Area: 539 square miles.—Woodland, 170,170 acres.

Tilled lands: 32,630 acres.—Area planted in cotton, none; in tobacco, 46 acres; in corn, 14,423 acres; in wheat, 5,565 acres; in rye, 1,823 acres; in oats, 1,621 acres.

Macon county occupies the valley of the Tennessee river, which flows through its center from beyond the Georgia border, on the south, toward the Smoky mountains. This is a wide, open valley, along which are considerable bodies of comparatively level and hilly lands; with extensive bottoms along the river and its principal tributaries, recalling in its general features the basin of the French Broad, though much less extensive. The county is better adapted to the cultivation of grains and has a larger area capable of such cultivation than the neighboring counties; but a large part of its territory is very mountainous, being hemmed in on all sides by high mountain ranges. Along its western side lies the massive chain of the Nantehaleh mountains, with its numerous heavy, ragged spurs, and on the western margin is a deep cañon, drained by the river of the same name. There are two notable plateaus in the south end of the county on the summit of the Blue Ridge, one on the headwaters of the east fork of the Tennessee, and the other on those of the Nantehaleh, both of them ranging from 3,500 to 4,000 feet in altitude.

The larger part of the area of the county is, therefore, better adapted to grazing than to anything else. The soils and forests are like those of the counties above described. The tilled land comprises 9.46 per cent. of the county area. The culture of tobacco has been recently introduced to a small extent, and mica mining is carried on extensively. There are also considerable deposits of iron ore, and the only extensive or profitable corundum mine in this country is found here. The beautiful red marble is found on the Nantehaleh river. A railroad has been recently graded across the northern end of the county.

SWAIN.

Population: 3,784.—White, 3,234; colored, 550.

Area: 445 square miles.—Woodland, 107,825 acres.

Tilled lands: 13,828 acres.—Area planted in cotton, none; in corn, 6,809 acres; in wheat, 1,473 acres; in rye, 515 acres; in oats, 757 acres.

Swain county lies north of Macon and Jackson, along the waters of the Tennessee river, and on the flanks of the great Smoky mountains on the north, which here reach their culmination in elevations of nearly 6,700 feet. With the exception of some open valley tracts near its center along the before-mentioned river and its tributaries, the territory of this county is exceedingly rugged and broken. The proportion of cultivable land is very small. It is heavily timbered, even to the highest summits of the Smoky mountains, with the prevalent mountain forest growths. The higher levels of the Smoky mountains, about 5,000 feet above sea-level, are covered with forests of firs, while the more elevated coves abound in white pine and hemlock, and its deep gorges and lower slopes with maple, poplar, linden, hickory, chestnut, buckeye, walnut, magnolias, and cherry. The summits of the high mountains furnish fine natural pasturage, and grazing has always been the chief industry. The approach of the railroad, which has been graded through its middle section, will speedily develop an extensive lumber interest. The tilled land occupies 4.86 per cent. of the county area.

GRAHAM.

Population: 2,335.—White, 2,123; colored, 212.

Area: 307 square miles.—Woodland, 49,767 acres.

Tilled lands: 8,212 acres.—Area planted in cotton, none; in corn, 4,222 acres; in wheat, 718 acres; in rye, 566 acres; in oats, 628 acres.

Graham county, lying south of the Tennessee river, is bounded on the west by the Smoky mountains and on the south by a high cross-chain called Long Ridge. It resembles Swain county very closely in its physical as well as its agricultural features. Its forests are a continuation of those of Swain, except that the mountains here do not reach the elevation necessary to produce the fir. There is some open valley and hilly land on the Okeowah river and its tributaries, which drains most of its surface. Its population is small, and its agriculture little developed, as there are no accessible markets. Its soils and timber are capable of becoming the basis of thriving industries as soon as the projected Rabun Gap and Knoxville railroad shall be completed. The tilled land occupies 4.18 per cent. of the county area.

CLAY.

Population: 3,316.—White, 3,175; colored, 141.

Area: 189 square miles.—Woodland, 60,606 acres.

Tilled lands: 15,063 acres.—Area planted in cotton, none; in tobacco, 25 acres; in corn, 7,810 acres; in wheat, 3,282 acres; in rye, 854 acres; in oats, 1,230 acres.

The small county of Clay, lying on the southern border, touches the state of Georgia, and is bounded on the east by Macon county, which it resembles very closely in all its features, physical and agricultural, and in its development. It is drained in a westerly direction by the Hiawasse river, which takes its rise in the Blue Ridge, in Georgia. Its eastern section lies upon the high plateau of the upper Nantehaleh river, and on the north lies the chain of the Koneteh mountains. A large part of its territory is very mountainous. It has fine, open valley lands on the river and its tributaries. Its southern section is hilly, somewhat mountainous, with fair agricultural capabilities. Both gold and mica are found, but have not been mined on any considerable scale. The tilled land occupies 12.45 per cent. of the county area.

CHEROKEE.

Population: 8,182.—Whites, 7,796; colored, 386.

Area: 470 square miles.—Woodland, 149,156 acres.

Tilled lands: 28,603 acres.—Area planted in cotton, none; in tobacco, 42 acres; in corn, 14,507 acres; in wheat, 4,317 acres; in rye, 1,126 acres; in oats, 1,534 acres.

Cherokee county occupies the extreme western corner of the state, of which it includes the whole breadth, at this point less than 20 miles. It is bounded in part on the north by the Smoky mountains, and touches the states of Tennessee and Georgia on the west and south. For the most part it resembles Clay county in its soils and agriculture. The valley of the Valley river is open and comparatively level, with extensive bottoms and bordering hilly lands. This valley is nearly 20 miles long and from 3 to 5 miles broad, and contains a large proportion of fine agricultural lands. The forests resemble those of the neighboring counties, and have been sufficiently described. Its agriculture is divided between the culture of grains and grasses and cattle-raising, and mines of gold, iron, and soapstone have been opened and wrought for many years. The iron-ore deposits are of great extent, and there is a great variety of colored marble on Valley and Nantehaleh rivers which needs only transportation to become valuable. The tilled lands occupy 9.51 per cent. of the county area.

PART III.

CULTURAL AND ECONOMIC DETAILS
OF
COTTON PRODUCTION.

REFERENCE LIST

OF

NAMES AND ADDRESSES OF CORRESPONDENTS.

SEABOARD OR TIDE-WATER REGION.

- Pasquotank*.—E. W. Hallowell, Elizabeth City, February 10, 1880.
Perquimans.—W. Nixon, Winfall, January, 1880.
Chowan.—L. W. Parker, Small Cross-roads, January 6, 1880.
Tyrrell.—E. Leigh, Fort Landing, February 24, 1880.
Washington.—J. P. Newberry, Plymouth, January 7, 1880.
Beaufort.—R. W. Wharton, Washington, January 10, 1880.
Pamlico.—J. S. Lane, Stonewall, January 29, 1880.
Craven.—C. Duffy, jr., New Berne, March 24, 1880; J. Humphrey, New Berne, January 12, 1880.
Curlet.—A. Onksmith, Hollywood, February 23, 1880; J. H. Becton, Harlowe, May 26, 1880.
Jones.—H. C. Foscue, Pollocksville, February 15, 1880.
New Hanover.—A. R. Black, Wilmington.
Brunswick.—W. G. Curtis, Smithville, January 9, 1880.
Columbus.—D. S. Cowan, Robeson, January 15, 1880.

LONG-LEAF PINE REGION.

- Gates*.—J. J. Gatling, Gatlington, March 10, 1880.
Hertford.—D. A. Barnes, Murfreesboro', June 30, 1880.
Bertie.—J. B. Cherry, Windsor, February 24, 1880; E. E. Etheridge, Colerain, April 3, 1880.
Northampton.—J. B. MacRae, Jackson, July 23, 1880.
Halifax.—J. N. Smith, Scotland Neck, June, 1880; R. H. Smith, Scotland Neck, December 18, 1880; J. H. Parker, Enfield, February 6, 1880.
Martin.—William Slade, Williamston, December 24, 1880; J. R. Lanier, Williamston, May 10, 1880.
Pitt.—W. M. B. Brown, Greenville, April 15, 1880; J. Joyner, Marlboro', March 20, 1881.
Greene.—W. E. Best, Snow Hill, January 20, 1880; W. P. Grimsley, Snow Hill, January 30, 1880.
Edgecombe.—W. G. Lewis, Tarboro', April 14, 1880; J. L. Bridgers, Tarboro', March 27, 1880; J. J. Battle, Rocky Mount, April 15, 1880; E. Carr, Old Sparta, January 13, 1880.
Nash.—J. M. Mayo, Whitaker's, June 1, 1880.
Wayne.—J. Robinson, Goldsboro', January 28, 1880.
Johnston.—E. J. Holt, Princeton, March 5, 1880.
Harnett.—H. C. McNeill, Lillington, January 30, 1880.
Moore.—J. C. Campbell, M. D., Carthage; J. M. Joy, Jonesboro', April 15, 1880.
Cumberland.—O. Evans, Idaho, January 1, 1880.
Sampson.—A. A. McKay, Clinton, February 10, 1880.
Duplin.—J. B. Oliver, Faison's, January 30, 1880; J. A. Bryan, Kenansville, June 5, 1880.
Bladen.—D. A. Lamont, Brinkland, February 2, 1880.

OAK UPLANDS REGION.

- Granville*.—J. W. Hunter, Kittrell's, March 22, 1880; S. P. J. Harris, Henderson, February 6, 1880.
Franklin.—B. Burwell, Louisburg.
Wake.—O. W. Shaffer, Raleigh, January 5, 1880.
Orange.—C. W. Johnston, Chapel Hill, February 16, 1880.
Alamance.—J. A. Graham, Graham, March 1, 1880.
Guilford.—D. W. C. Benbow, M. D., Greensboro', January 29, 1880.
Chatham.—J. F. Rives, Pedlar's Hill, February 2, 1880; R. J. Powell, Pittsboro', February 6, 1880; J. W. Scott, Haywood, January 1, 1880.
Rowan.—J. G. Ramsay, Scotch Ireland, June 14, 1880.
Cabarrus.—J. McDonald, Concord, January 20, 1880.
Anson.—W. A. Liles, Wadesboro', March 8, 1880.
Union.—H. M. Houston, Monroe, January 30, 1880.
Mecklenburg.—W. E. Ardrey, Pineville, February 18, 1880; R. I. McDowell, Charlotte, March 25, 1880.
Gaston.—J. Stowe, Lowell, January 27, 1880.
Lincoln.—W. A. Graham, Iron Station, February, 1880.
Cleveland.—E. P. Chambers, Stice's Shoal, March 24, 1880; J. B. Logan, Shelby, March 2, 1880.
Alexander.—W. P. Burke, Taylorsville, June 24, 1880.

SUMMARY OF ANSWERS TO SCHEDULE QUESTIONS.

This part of the report embraces a summary of the answers given to each question or group of questions included in schedules sent to farmers in different parts of the cotton region of the state. Forty-eight of the counties in which cotton is grown are here represented.

When a special answer is given, the name of the county from which it comes is put in *italics*, and separated by semicolon.

TILLAGE, IMPROVEMENT, ETC.

1. Usual depth of tillage (measured on land-side of furrow): What draft is employed in breaking up?
 From 3 to 6 inches in the great majority of counties throughout the state. From 2 to 3 inches in Perquimans, Jones, Columbus, Guilford, Cabarrus, and Martin. In breaking up, 8 inches in Chowan, Beaufort, Lincoln, and Moore. The draft employed is usually one or two horses or mules. *Beaufort*: Double teams on large farms.
2. Is subsoiling practiced? If so, with what implements, and with what results?
 It is not practiced in fourteen counties of the coast and long-leaf pine regions and in Granville county, of the oak upland region. To a small extent in all other counties except Beaufort, Anson, Union, Edgecombe, and Harnett, where the custom is more prevalent. Murphy's subsoil plow is used in several counties; in others either the bull-tongue, colter, or shovel plow. Results are excellent everywhere except in Orange, Alamance, Lincoln, Halifax, Martin, Jones, Moore, and Duplin.
3. Is fall plowing practiced? With what results?
 Not at all in Dare, Carteret, Jones, Wake, Northampton, Greene, and Harnett; very little in twenty-six counties, and to a large extent in the rest. Results are good in all but four counties, especially on stiff or heavy land in Beaufort, Halifax, and Nash; not much better than spring plowing in Union.
4. Is fallowing practiced? Is the land tilled while lying fallow, or only "turned out"?
 In twenty-eight counties fallowing with tillage is not practiced, the land only being "turned out". In Granville, Franklin, Orange, Guilford, Rowan, Cabarrus, Alexander, and Pitt the lands are tilled while lying fallow. In Chowan only "turned out" when very rough. In a few other counties fallowing is practiced to a small extent. Results are not given.
5. Is rotation of crops practiced? If so, of how many years' course, in what order of crops, and with what results?
 In eighteen counties rotation is either not practiced at all or to a very small extent, cotton being planted continuously from year to year; usually, in three years' course, corn and small grain and pease or potatoes following cotton. No regular order prevails; results are generally good for cotton, except in Alamance and Martin. In Guilford corn impoverishes but wheat improves the land. In Lincoln cotton is planted two or three years, and then corn one year.
6. What fertilizers, or other direct means of improving the soil, are used by you, or in your region? Is green-manuring practiced? With what results?
 The use of commercial fertilizers is reported from twenty-eight counties, and in ten of these no other fertilizer is mentioned. In all other counties composts of stable manure, with other material, such as leaves, muck, lime, ashes, cottonseed, etc., are in general use. Marls are put on the land in Pamlico, Craven, Columbus, Pitt, Edgecombe, Duplin, and Bladen. In some of the counties commercial fertilizers alone are thought to be unprofitable. *Green-manuring* is not practiced to any extent in twenty-four counties; in others, cow-pease, grass, and sometimes clover are turned under, and yield good results, except in Duplin, where "there is no marked benefit".
7. How is cottonseed disposed of? If sold, on what terms, or at what price? Is cottonseed-cake used with you for feed?
 In thirty-six counties the seed is used or sold only for manure, while in the others it is partly fed to stock for feed. Its price is from 10 to 12½ cents per bushel. Cottonseed-cake is not used in any of the forty-three counties from whence answers were received, except Wake, where very little is fed to cows.

PLANTING AND CULTIVATION OF COTTON.

8. What preparation is usually given to cotton land before bedding up?

In seven of the counties no preparation is given the land before bedding up. In twenty-four counties spring plowing is done; in nine counties fall or winter plowing is practiced sometimes. The old stalks are usually plowed under. *New Han-*

over: The land is well broken, and sometimes subsoiled. *Moore*: Fall plowing is best for stubble land, spring plowing for hard gravelly land; but no preparation is necessary for a sandy or clay soil.

9. Do you plant in ridges? How far apart?

Cotton is planted in drills only in Greene county. In all others ridges are usually preferred. A distance of from 3 to 4 feet

between the ridges is the almost universal width, Granville, Alamance, Franklin, and Greene alone giving a less distance.

10. What is your usual planting time?

The earliest dates given are March 15 in Carteret, and April 1 in Rowan, April 10 in Pamlico and Cabarrus, April 15 to 25 in thirty-one counties, May 1 in eleven counties, and May 15 in

Union. The longest planting season given is in Carteret—March 15 to June 1.

11. What variety do you prefer? How much seed is used per acre?

There are fifteen varieties of cotton mentioned, and in a majority of counties no preference is expressed between several of the varieties. The Dixon is, however, most generally planted, its name appearing in twenty-three counties. The Johnson is mentioned six times, Boyd's, Peeler, and Simpson varieties

three times, Sugar-Loaf twice, and Matagorda silk, Clinton, Petit Gulf, and others once each.

In twenty-four counties, from 1 to 2 bushels; in seventeen counties, sometimes as much as 3 bushels; and six counties, occasionally 4 bushels. *Chowan*: From one-half to 1 bushel.

12. What implements do you use in planting? Are "cottonseed planters" used in your region? What opinion is held of their efficacy or convenience?

In twenty-nine counties cotton-planters are used either of some patent or home-made. A harrow usually precedes the planter, and sometimes a drill is made. In other counties (fourteen) the row is opened with a plow, the seed dropped by hand, and covered with a board attached to a plow-stock. In all

but five counties cotton-planters, where used, are in great favor; "they save labor, are convenient, plant regularly, and economize seed." *Anson*: Liked where land is not too rough. *Columbus*: Not entirely reliable, though convenient.

13. How long usually before your seed comes up?

For favorable season the time is put at from 3 to 5 days in fourteen counties, from 6 to 8 days in nineteen counties, 9 to 10 days in eight counties, 14 days in Orange and Lincoln, and 14 days, if soaked before planting, in Alamance. In unfavorable weather

it sometimes is from 21 to 30 days before the plant appears in Perquimans, Chowan, Pamlico, Carteret, Cabarrus, Lincoln, and Pitt counties.

14. At what stage of growth do you thin out your stand, and how far apart?

In twenty-eight counties, when the plant is well up or from 2 to 4 leaves have appeared, or when from 3 to 6 inches above ground. When plants are from 10 to 15 days' old in Washington, Brunswick, Granville, Orange, Chatham, Gates, Harnett, and Cumberland. After 21 days in Bladen; when 6 weeks' old

in Pamlico. One or two plants are left standing at from 12 to 15 or 18 inches apart in the majority of counties; 6 to 8 inches in Wake, Alamance, Rowan, Cabarrus, Mecklenburg, Alexander, and Greene; 24 inches in Orange.

15. Is your cotton liable to suffer from "sore-shin"?

In ten counties, mostly in the coast region, the disease is not known; in twelve others it seldom appears, while in twenty-two it is very prevalent. *Craven*, *Granville*, and *Edgecombe*: Only when

bruised with the hoe. *Washington*, *Beaufort*, *Wake*, *Cabarrus*, *Mecklenburg*, *Cleveland*, *Gates*, *Bertie*, and *Bladen*: In wet, cold weather. *Pitt*: When spring winds are high.

16. What after-cultivation do you give, and with what implements?

Northampton and *Halifax*: Bar off, chop out grass with hoes, then use a very small plow to throw the dirt back to the plant; then use only cotton plows. *Martin* and *Nash*: Run along close to the cotton with a fine-toothed harrow; then chop out and side up with a sweep.

Twelve counties use scraper, turn-plows, sweeps, and cultivators,

usually going over the field three or four times and chopping out the grass between plants with a hoe. Fourteen counties use sweeps and hoes only, giving a shallow cultivation. *Cleveland*: Use the bull-tongue plow, harrow, and hoe. *Hertford*: Use cotton plow, weeding-hoe, and sweeps; work the land about every 10 days.

17. What is the height usually attained by your cotton before blooming?

From 6 to 8 inches in Franklin and Harnett; from 12 to 18 inches in most of the other counties. *Pasquotank*, *Perquimans*, *Dare*, *Beaufort*, *New Hanover*, *Brunswick* (of the coast), *Pitt*, *Cum-*

berland, *Sampson*, and *Bladen* (long-leaf pine region), and *Orange*, *Chatham*, and *Lincoln* (oak uplands), from 24 to 30 inches.

18. When do you usually see the first blooms?

Beaufort, *Pamlico*, *Craven*, *Anson*, *Mecklenburg*, *Lincoln*, *Wayne*, *Johnston*, and *Bladen*: June 25 to 28. All other counties July

1 to 10, except *Columbus* and *Guilford*, where August and September are given as the dates.

19. When do the bolls first open?

July 15 in *Wayne*; August 1, *Pamlico*, *Carteret*, *Franklin*, *Rowan*, and *Cleveland*; August 10 to 15, in *Chowan*, *Washington*, *Beaufort*, *Craven*, *Gates*, *Northampton*, *Martin*, *Nash*, *Harnett*, *Cum-*

berland, *Bladen*, *Chatham*, *Anson*, and *Gaston*. From August 15 to September 1, in all other counties, except *Columbus*, in which October is named.

20. When do you begin your first picking?

September 1 in Chowan, Washington, Beaufort, Carteret, Craven, and Brunswick (coast region), Gates, Martin, and Wayne (long-leaf pine), Franklin, Orange, Chatham, Cabarrus, Anson, Gaston, and Cleveland (oak uplands); September 10 to 15 in twenty-one

counties. From September 15 to October 1 in all other counties, except Columbus, in which the first picking is made in the latter part of October.

21. How many pickings do you usually make, and when? Do you ordinarily pick all your cotton?

Two pickings in Chowan, Pamlico, and Guilford; four in Wake, Cabarrus, Northampton, and Duplin, in September, October, November, and December. Three pickings usually in all

other counties during September, October, and November, or from two to four weeks apart. In all of the counties, except Bladen, the cotton is usually all gathered.

22. At what date does picking usually close?

November 1 in Guilford; November 15 in Dare; December 1 in Washington, Franklin, Orange, Alamance, Chatham, Union, Cleveland, Pitt, Wayne, Harnett, Sampson, and Bladen;

December 10 or 15 in sixteen counties; from December 15 to January 1 in all others.

23. At what time do you expect the first "black frost"?

October 1 in Alexander; October 10 or 15 in Beaufort, Craven, Carteret, New Hanover (coast region), Bertie, Martin, Greene, Edgecombe, Nash, Harnett (long-leaf pine), Granville, Franklin, Orange, Alamance, Chatham, Anson, Union, Mecklen-

burg, Gaston, Lincoln, Cleveland (oak uplands); from October 15 to November 1 in nineteen counties; November 10 or 15 in Pamlico, Columbus, Northampton, and Bladen.

24. Do you pen your seed-cotton in the field, or gin as the picking progresses?

In no county is it reported as penned in the field. In fourteen counties it is housed mostly in the gin-house until each picking is over, or till time can be had for ginning. In all other

counties cotton is ginned as the picking progresses. Anson: Large planters gin as picking progresses; others only when convenient.

GINNING, BALING, AND SHIPPING.

25. What gin do you use? How many saws? What motive power? How much clean lint do you make in a day's run of 10 hours? Which mechanical "power" arrangement do you prefer with horse-power?

There are 14 different gin patents in use in the state as far as reported. Of these the Brown is mentioned in 25 counties, the Georgia in 12, the Hall in 8, the Taylor in 4, Emery in 3, and others in 1 or 2 counties each. These are the Carver, Needle, Carolina, Carter, Clements, Griswold, Rowland, Massey, and Excelsior. The number of saws vary from 40 to 100 in each gin. The motive power is steam, water, and horses or mules; but a preference for steam is reported in 16 counties, for water in 5 counties, and for mules in 1 county. The following capacity of each gin in ten hours' run with the different powers is given:

Brown's gin of 40 saws, with 4 horse-power, steam, will make 1,875 pounds; 40 saws, with 12 horse-power, steam, 4,000 pounds; 45 saws, with horse-power, 1,600 pounds; 50 saws, with horse-power, 1,600 pounds; 50 saws, with steam, from 2,000 to 4,000 pounds; 60 saws, with water, 3,125 pounds; 70 saws, with water, 3,500 pounds.

Georgia gin of 30 saws, with 3 mules, will make 2,000 pounds; 35 saws, with 2 mules, 1,200 pounds; 40 saws, with water, 1,500 pounds; 50 saws, with mules, from 1,000 to 2,000 pounds; 50 saws, with 10 horse-power engine, 5,000 pounds; 60 saws, with water, 3,000 pounds.

Hall's gin of 50 or 60 saws, with steam, from 3,000 to 4,000 pounds. The Needle gin of 50 saws, with 8 horse-power engine, 2,000 pounds; 50 saws, with 10 horse-power engine, 5,000 pounds.

Rowland's Carolina gin of 50 saws, with water-power, 4,000 pounds. Emery's gin of 50 saws, with steam, from 3,000 to 4,000 pounds; 50 saws, with water, 2,500 pounds.

Taylor's gin of 40 saws, with horse-power, 1,000 pounds.

As a "power" arrangement with mules or horses we prefer that made here; it has a large driving-wheel, cog-gearing, and band-wheel (*Pasquotank*).

26. How much seed-cotton, on an average, is required for a 475-pound bale of lint?

In most of the counties 1,425; sometimes 1,310 in Columbus, Pasquotank, and Edgecombe; 1,450 in Alamance; 1,485 in Pamlico, Craven, Cleveland, Northampton, and Harnett; 1,515 in

Halifax; 1,545 in New Hanover and Gates; 1,660 in Wake and Orange.

27. What press is generally used in your region for baling? What is its capacity?

In many of the counties home-made screws are in use. There are fifteen patented iron screw presses reported, Ball's and Brooks' being mentioned six times each, Cockade three times, and the following once or twice each: Caldwell, Centennial, Dixie, Boss, Roanoke, Godwin's, Eclipse, Beasley, Cotton King, Com-

pass, Hart's, and Southern Standard. Their capacity is from 10 to 15 bales per day, or about 1 bale per hour. "The Cotton King will, with three men, pack a bale in ten minutes" (*Harnett*).

28. Do you use rope or iron ties for baling? If the latter, what fastening do you prefer? What kind of bagging is used in your region?

Iron ties only are used throughout the state, with arrow, buckle, and anchor fastenings. The arrow is the most popular fastening.

Gunny bagging is used in thirteen counties. Jute, double anchor and arrow, Kentucky, Dundee, and Standard are used in other counties; also the "domestic", manufactured at Richmond.

29. What weight do you aim to give your bales? In this respect?

Four hundred pounds in Brunswick, Alamance, and Cumberland; from 450 to 500 pounds in all other counties. In most of the state "no conditions" are imposed. *New Hanover, Nash, Halifax, Duplin*: Additional freight is charged if over 450 pounds.

Have transportation companies imposed any conditions

Cleveland: The Carolina Central railroad averages bales at 400 pounds. *Sampson*: Extra charges are made for over 500 pounds weight. *Mecklenburg, Greene, Wayne*: \$1 is deducted from the price of each bale below 400 pounds weight.

DISEASES, INSECT ENEMIES, ETC.

30. By what accidents of weather, diseases, or insect pests is your cotton crop most liable to be injured? At what dates do these several pests or diseases usually make their appearance? To what cause is the trouble attributed by your farmers?

The caterpillar appears in ten counties of the coast region; in Pitt, Nash, Johnston, Sampson, and Bladen, of the long-leaf pine region; and in Guilford and Rowan, of the oak uplands. It usually comes in August and September in these counties, except in Beaufort and Johnston. There it appears in October, too late to do any damage. *Lincoln*: The caterpillar has been here twice in fifteen years, coming late in the season and doing as much good as harm by eating the leaves, thus letting in the sun and causing cotton to open.

The boll-worm is only reported in Perquimans, Jones, Pitt, Harnett, Bladen, Guilford, and Rowan counties, and usually appears in August.

The cut-worm causes damage in Pitt and Duplin counties in May. Cotton-lice in Pasquotank, Carteret, Pitt, Edgecombe, Wayne, and Johnston counties in June and July.

Shedding causes much damage in all of the counties except New Hanover, Columbus, Alamance, Union, Gaston, and Wayne, where no mention is made of it. It is generally attributed to droughts after excessive rains in the spring.

31. What efforts have been made to obviate the trouble, and with what success?

None in twenty counties.

High fertilization, good culture, and thorough drainage is practiced against rust and shedding in Perquimans, Beaufort, Gates, Hertford, Bertie, Martin, Pitt, Greene, and Moore, with fair success in most cases. *Beaufort* and *Craven*: Wood ashes are used against rust. *Craven*: Acid phosphate to keep bolls from rotting. *Carteret*: Lime and salt, with some success. *Anson*: Subsoiling for shedding and potash for rust, with in-

Rot of bolls is complained of in all of the counties except Perquimans, Pasquotank, Carteret (coast region), Gates, Hertford, Northampton, Pitt, Nash, Wayne, Johnston, Harnett, Duplin (long-leaf pine region), Granville, Franklin, Cabarrus, Anson, Lincoln, Cleaveland, and Alexander (oak uplands). It is usually attributed to wet weather. *Moore*: Caused by water penetrating the holes made by the boll-worm.

Rust is reported in all of the counties except Dare, Carteret, Granville, Lincoln, Alexander, and Martin. It is usually attributed to "bad weather". *Union*: Cold nights followed by heavy dews. *Halifax*: Black rust in wet and red rust in dry seasons, and attributed to bad drainage, cold nights, heavy dews, and want of fertilizers. *Pitt, Anson, and Duplin*: To want of manure, potash in vegetable matter in the soil. *Moore*: To unsuitable soils. *Sampson*: A want of salt in the manure. *Beaufort*: On badly drained and poor land, or in soils having too much iron.

Blight is reported from only nineteen counties, attributed mostly to bad weather.

different success. *Lincoln*: Deep plowing against rust. *Halifax*: Ditching and application of vegetable matter, except for rust, against which no remedy has been found. *Edgecombe*: Ditching and kainit, also marling, greatly modifies black rust. *Nash*: Salt and sulphate of potash produce fine results. *Duplin*: Rotation of crops, fallowing, and applying vegetable matter, or using muriate of potash, from 30 to 50 pounds per acre, with other manure, meet with marked success.

32. Is rust or blight prevalent chiefly on ill-drained soils? Do they prevail chiefly in wet, cool seasons? On which soil described by you are they most common?

COAST REGION: Most common on the heavy and ill-drained soil of the low, black swamp land in cool and wet weather, in Pasquotank, Chowan, Washington, Beaufort, and Carteret. Most common when land is poorest after heavy cool rains in Tyrrell and Brunswick; on heavy and ill-drained soils in wet, hot seasons in Jones; on ill-drained gray loam soil with clay subsoil in New Hanover. "I have seen it in low, wet bottoms, and within 3 feet of a ditch in wet and dry seasons, and hot and cool weather" (*Perquimans*).

LONG-LEAF PINE REGION: On ill-drained soils in all the counties. In wet and cool seasons in nine counties; in wet and hot seasons in three counties; in dry and cool in three counties. Most

common on lowlands in five counties, and on light sandy soils with stiff clay subsoils in most of the region. *Moore*: The farmers of the red sandstone region nearly all affirm that their cotton is not much subject to rust, disease, or other pest.

OAK UPLANDS: On ill-drained soil; sometimes on heavy clay soils; sometimes on light sandy soils with an impervious subsoil; on black-jack oak soil in Cabarrus. On the red or hickory soils (Gaston), "which suffers all the ills." In wet and hot seasons in Anson; dry and hot seasons on land where stable manure has been applied alone in Lincoln; wet and cool seasons in other counties.

33. Is Paris green used as a remedy against the caterpillar; if so, how, and with what effect?

Craven: Yes; sprinkled over the plants with good success. *Brunswick*: Yes, but with poor effect. *New Hanover*: Yes, but the

caterpillar is not troublesome. Paris green has not been used in any other county to any extent.

LABOR AND SYSTEM OF FARMING.

34. What is the average size of farms or plantations in your region? Is the prevalent practice "mixed farming" or "planting"?

COAST REGION: From 1 to 20 acres in Dare; from 60 to 200 in Chowan, Pasquotank, Jones, and Carteret; 150 in Beaufort; from 30 to 300 in Craven; from 50 to 500 in Perquimans, Tyrrell, and Pamlico; from 100 to 1,000 in Washington. The practice is entirely "mixed farming".

LONG-LEAF PINE REGION: From 30 to 60 acres in Gates, Moore, Martin, and Sampson; from 50 to 150 in Hertford, Greene, Harnett, and Bladen; from 300 to 500 acres in other counties. The practice is altogether "mixed farming".

OAK UPLANDS: From 50 to 100 acres in Orange, Chatham, Anson, Union, Gaston, and Alexander; from 50 to 200 in Franklin, Alamance, Guilford, Rowan, Cabarrus, and Cleaveland; from 50 to 300 in Granville, Wake, Mecklenburg, and Bertie; from 50 to 6,500 acres in Lincoln. The practice is "mixed farming", except in Wake, where "planting" is chiefly done.

35. Are supplies raised at home or imported, and if the latter, where from? Is the tendency toward the raising of home supplies increasing or decreasing?

Brunswick, Wake, Bertie, and Northampton: Mostly imported from Baltimore and Cincinnati. *Carteret and Hertford*: About one-half raised at home. *Gaston and Edgecombe*: Partly at home. *Nash*: We import a great deal of meat, flour, sugar, corn, tea,

etc. In all other counties supplies are mostly raised at home. Some bacon is purchased elsewhere. The tendency toward raising home supplies is increasing in all of the counties except Rowan and Anson, where it is said to be "stationary".

36. Who are your laborers chiefly? whites, of what nationality?

In Chowan county alone white laborers predominate. In twenty-seven counties negro laborers are most numerous, while in

the rest the laborers are thought to be about evenly divided between the two races.

37. How are their wages paid; by the year, month, day; and at what rates? When payable?

In a majority of the counties of the state laborers receive from \$8 to \$10 per month, and from \$80 to \$100 per year, with rations, house, and fuel, or from 40 to 50 cents per day, without rations. In others the rates are from \$6 to \$8 per month, with rations,

from 30 to 40 cents per day, or \$75 per year. Women and children receive usually about \$5 per month, with board. Wages are usually paid at the end of a specified time, either the month, week, or day; sometimes when cotton crops are sold.

38. Are cotton farms worked on shares? On what terms? Are any supplies furnished by the owners?

The share system is in general practice throughout the cotton counties, the counties of Alexander, Pasquotank, and Guilford alone reporting "no", while a few reply "to some extent". When the owner furnishes all necessary supplies, except food

for the laborer, and one-half of any fertilizers that may be used, the crop is equally divided between the owner and laborer. For land alone, without supplies, the owner receives one-third of the corn and one-fourth of the cotton.

39. Does your system give satisfaction? How does it affect the quality of the staple? Does the soil deteriorate or improve under it?

It does not give satisfaction in Perquimans, Craven, Jones, Guilford, Harnett, and Bladen. "Hard to say" in Pamlico, Franklin, and Edgecombe. "Yes" in all the others.

is not affected in other counties. The soil is not affected in Perquimans, Alexander, and Pitt; "improves if properly manured and cultivated" in eleven counties, but "deteriorates" in all others.

The staple is improved in Washington; is not so good in Gates, and

40. Which system (wage or share) is the better for the laborer, and why?

Pamlico, Craven, Granville, and Pitt: But little difference either way, as they accumulate but little. *Greene*: Shares for the married and wages for the single, because the former make more and the latter are idle less.

negroes are extravagant, exercise no forethought, and need intelligent direction; they need not run in debt; their condition requires a regular income.

Wages in thirty-one counties for following reasons: Laborers receive cash monthly; are better clothed and fed; cultivate with better judgment and have fewer failures in crops, and crops are not neglected; for them there are no contingencies;

Shares in eleven counties: Laborers are provided for during winter months; they spend wages as fast as obtained. They can make more with proper work; gives a living at home and children can be made useful; take better care of the crop and are less wasteful.

41. What is the condition of the laborers?

In thirty-four counties "good" and mostly improving. In eight counties "poor". *Gaston*: Not good, but truly happy. *Lincoln*: Improved some, but not much. *Wayne*: Considerably

demonialized. *Sampson*: Happy, if let alone by politicians. *Jones*: Not as good as we would wish. *Hertford*: Live well, but are improvident.

42. What proportion of negro laborers own land, or the houses in which they live?

Columbus: About 90 per cent. *Dare*: About two-thirds. *Tyrrell* and *Beaufort*: One-fourth. *Craven* and *Chatham*: One-fifth. *Gaston, Greene, Sampson*: One in eight or ten. *Pamlico, Wake, Cleveland, Alexander, Martin, Moore, Cumberland, and Bladen*:

One in twenty. *Chowan, Franklin, Union, Pitt, Edgecombe, and Wayne*: One in fifty. *Pasquotank, Perquimans, Alamance, Rowan, Johnston, and Duplin*: "One in a hundred." In other counties, "very few."

43. What is the market value of the land described in your region? What rent is paid for such land?

COAST REGION: *Perquimans, Chowan, Pamlico, and Jones*: From \$10 to \$15 and \$20 value; from \$3 to \$5 as rent per acre. *Pasquotank, Washington, Beaufort, New Hanover, and Columbus*: Value, from \$5 to \$3 and upward; rent, from \$2 to \$5 per acre. In other counties values and rents from \$2 and upward.

and *Gaston*: Value, from \$10 to \$20 and \$30 per acre; rents, from \$2 to \$5 per acre. *Franklin, Orange, Alamance, Rowan, Cabarrus, Lincoln, and Alexander*: Value, \$5, \$7, \$8 and upward; other counties, from \$2 to \$4 and upward. Rents, from \$2 to \$4 per acre.

LONG-LEAF PINE REGION: *Pitt, Greene, Edgecombe, and Cumberland*: Value, from \$10 to \$20; other counties, from \$2 to \$7 and upward. Rents, from \$1 50 to \$5 per acre.

In all of the cotton counties portions of the crop are taken as rent. (See No. 41.) *Franklin*: 800 pounds lint cotton for 25 or 30 acres.

OAK UPLANDS REGIONS: *Granville, Wake, Anson, Union, Mecklenburg,*

44. How many acres, or 400-pound bales, per "hand" is your customary estimate?

From 10 to 15 acres of cotton, besides the same amount of land in other crops; or from 25 to 30 acres alone in cotton. The number of bales of cotton varies according to the character of land cultivated, but is usually from 5 to 7 bales with other crops,

or from 8 to 10 if cotton alone is planted. For picking this amount extra hands have to be employed. In Craven, Granville, Anson, Gates, Bertie, Moore, Cumberland, and Sampson but 3 or 4 bales are estimated per hand with other crops.

45. To what extent does the system of credits or advances upon the growing cotton crop prevail in your region?

Very little in Columbus, Guilford, Chatham, and Alexander. To a considerable extent in Brunswick, Rowan, Anson, Union, Cleveland, Cumberland, and Duplin. Not too much in Pamlico. To value of one-half of the crop on an average in Carteret, Franklin, Mecklenburg, and Wayne. Only for fertilizers in Alamance. In other counties the system prevails to a great extent, and in several "almost universally". *Wake*: Most farmers

do not clear enough one year to enable them to grow the next year's crop. The system is "blue ruin" to the farmer. *Craven*: The merchants and others who furnish supplies take advantage by charging extortionate prices. *Lincoln*: Not much among those farmers doing their own work, but is almost universal among those who hire. *Edgecombe, Pitt, Beaufort*: The practice is decreasing every year.

46. At what stage of its production is the cotton crop usually covered by insurance? Is such practice general?

From March to November in Gaston. It is generally insured when in the gin-house in Franklin, Edgecombe, and Sampson, and sometimes in Pasquotank, Perquimans, Chowan, Craven,

47. What are the merchants' commissions and charges for storing, handling, shipping, insurance, etc., to which your crop is subject? What is the total amount of these charges against the farmer per pound or bale?

Commissions, from $2\frac{1}{2}$ to 3 per cent.; storage, 25 cents per month; wharfage, 20 cents; weighing, from 10 to 15 cents; drayage, 10 cents in New Hanover, 15 cents in Carteret, 63 cents in Halifax; handling, 30 cents in Hertford, 75 cents in Halifax; insurance, $\frac{1}{2}$ per cent. in New Hanover, 25 cents in Carteret, Franklin, Gates, and Nash; 50 cents in Hertford; total charges, about 1 cent per pound to reach Baltimore or New

Jones, Martin, Pitt, Moore, and Cumberland; when ready for shipment in a few counties, but not at all in the others until the cotton has passed out of the hands of the farmer.

York, or from $\frac{1}{4}$ to $\frac{1}{2}$ cent per pound to Norfolk, including freight from Beaufort and Pasquotank; 1 cent to Norfolk, and $1\frac{1}{2}$ cents per pound to New York from Pitt, Edgecombe, and Nash; to Wilmington from Columbus county, \$1 50 per bale. In other counties the usual estimate is \$2 per bale, except at local markets, where farmers sell direct to buyers, and avoid other charges than weighing, or, perhaps, commission.

48. What is your estimate of the cost of production in your region, exclusive of such charges, and with fair soil and management?

From 5 to 6 cents per pound in Chowan, Carteret, Bertie, Gaston, and Duplin; from 7 to 8 cents in twenty-four counties; from 8 to 9 cents in eight counties; 10 cents in Dare, Pamlico, Granville, and Gates; \$5 per acre in Guilford; \$10 in Alexander; \$12 in Granville; 2 per cent. in Perquimans; from 50 to 60 per cent. in Rowan.

Alamance: 8 cents per pound; at 10 cents it pays better than corn at \$1 per bushel.

1878. Dr.

To preparing ground, planting seed, putting in fertilizers, bringing to a stand, hoeing, and cultivation.....	\$99 65
To cost of fertilizers (cash).....	110 97
To picking 21,984 pounds of seed-cotton.....	98 01
To interest on capital.....	72 00
To taxes.....	8 00
To bagging and ties.....	14 00
To transportation.....	10 00
	412 63
Less the value of seed.....	56 25
	356 38

1879. Dr.

To preparing ground, putting in fertilizer, planting, bringing to a stand, hoeing, and cultivation.....	\$97 34
To 40 bushels seed, at $12\frac{1}{2}$ cents per bushel.....	5 00
To fertilizers (cash).....	92 12
To blacksmithing.....	3 00
To picking 22,013 pounds of seed-cotton.....	90 69
To bagging and ties.....	15 00
To interest on capital.....	72 00
To taxes.....	8 00
To transportation.....	10 00
	393 15
Less the value of seed.....	56 25
	336 90

It will be observed from an examination of the foregoing statements that the cost per pound in growing cotton must depend upon the yield per acre; that the product per acre is the measure of the planter's profit; that the cost of cultivation, etc., of an acre is the same when yielding 500 pounds or less of seed-cotton, as when yielding 1,000 pounds or more, saving the additional cost of picking, which is fully counterbalanced by the gain in seed, and that there can be no profit when the product of an acre fails to realize the farmer or planter more than \$12.

COST OF PICKING: The usual price paid is 50 cents per 100 pounds without board, or 40 cents with board. *Beaufort*: In the first of the season, when cottonseed is heavy, the price paid is 40

Cabarrus (a): Determined to ascertain what it cost a pound to grow cotton, I commenced in 1878 to keep an accurate field account. To be certain that the year 1878 was not an exceptional year as to cheapness of labor, etc., I continued the account the following year. The quantity of land in cultivation was 22 acres and over; the same tract both years. The preparation of the ground and after cultivation was probably more thorough than are usually given for this crop.

1878. Cr.

By 7,087 pounds baled cotton sold.....	637 83
Net profit.....	281 45

Items.

Cost of cotton per pound, 5.3 cents.	
Expense per acre, exclusive of fertilizers.....	\$11 63
Net return per acre.....	12 32
Average price received per pound, 9 cents.	
Yield of seed-cotton per acre, 999.8 pounds.	

1879. Cr.

By 7,317 pounds baled cotton sold.....	813 19
Net profit.....	476 29

Items.

Cost per pound, $4\frac{1}{2}$ cents.	
Expense per acre, including fertilizers.....	\$15 32
Profit per acre.....	21 65
Average price received per pound, 11.11 cents.	
Yield of seed-cotton per acre, 1,000 $\frac{1}{2}$ pounds.	

cents; in the middle of the picking season, 50 cents; in the latter part of the season, when cotton and seed are light, from 60 cents to \$1 per 100 pounds. The average amount picked is 140 pounds. *Duplin*: An ordinary hand can average about 100 pounds per day; under favorable circumstances some pick as much as 200 pounds. It is usual to pick the cotton fields over two or three times, which is one reason why as much is not gathered as farther south. *Alamance*: Hands are paid 50 cents per 100 pounds with board, or 75 cents without board. An ordinary hand can pick only 100 pounds per day. *Northampton*: An ordinary hand can only pick 75 pounds of cotton per day

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